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MAY 26, 2003 • VOL. 37 • NO. 21 • \$5/COPY

Aviall was "going the wrong way on revenue," says CIO **JOE LACI**.

Going for Broke

Aviall Inc. was in deep trouble, losing \$70 million in sales because of a faulty financial system. But then it made the gutsy decision to plow \$40 million into an IT overhaul. The payoff: Sales doubled and profits rose. Read about how the aviation parts supplier pulled off this amazing turnaround. **PAGE 41**

HP Takes New Pricing Path For Utility-based Computing

Vendor develops 'compton' mechanism for on-demand IT services; some users are leery

BY THOMAS HOFFMAN

Researchers at Hewlett-Packard Co. are developing a new pricing approach for the outsourced capacity-on-demand computing services the company offers. But several IT managers said they're worried that the plan is too complex.

Under HP's scheme, prices would vary based on factors such as the overall demand placed on servers, storage devices and other IT resources, said Bernardo Huberman, an HP fellow and director of the systems research center at the company's HP Labs unit.

HP's Compton

What it is: A unit-of-computing pricing approach that would vary based on the IT service being measured (e.g., network bandwidth or server capacity).

Pricing factors: Demand for and availability of computing resources, customer usage and the potential risk that IT assets will be over- or underutilized.

When it will be commercialized: HP hopes to conduct in-house tests by early next year, with field tests to follow.

He added that a new unit-of-computing metric, which is being called a "compton" inside HP, would be akin to the pricing models that utilities use to charge customers for kilowatt-hours of electricity based on the ebb and flow of power demand.

Huberman acknowledged that the compton effort is complicated. For instance, HP will have to account for variables such as how well its data centers perform and the amount of computing resources that customers require, he said. HP also needs to figure out a way to build in pricing provisions to cover the possibility that companies will use more or less of a specific IT resource, like CPU cycles, than they have contracted for *Compton, page 57*

B2B Venture Maps Rebound

Bank-owned Identrus hires CEO, sets new digital certificate plans

BY LUCAS MEARIAN

After going nearly a year without a CEO, Identrus LLC last week said it has hired a chief executive who's charged with resurrecting the developer of digital certificate technology and expanding the use of its Web-based services for certifying the authenticity of business-to-business transactions.

New CEO Karen Wendel acknowledged that New York-based Identrus, a privately held company formed by a consortium of eight banks in 1998, has failed to effectively market its digital identity-authentication system and

create applications that could generate increased demand among financial services firms and other potential users.

In addition, Identrus' system — which is based on public-key infrastructure technology — isn't tied to payment-messaging programs, supply chain management systems or other business applications.

E-COMMERCE

Wendel said she plans to pursue partnerships with application vendors like SAP AG and PeopleSoft Inc. and hopes to sign some deals within the next 12 months. She added that she will also hire a new marketing team for Identrus in the near future.

One big misstep by the company was relying on its owner banks to create interest in its

Identrus, page 16

New Furor Over Visas Reaches Hill


Measure would curb L-1 program; H-1B cap decline approaches

BY PATRICK THIBODEAU

Legislation introduced in Congress last week would curb the use of the controversial L-1 visa, which, like its better-known counterpart the H-1B visa, lets U.S. companies import foreign workers.

The proposal is the first move on IT-related visa issues in what may be a pivotal year

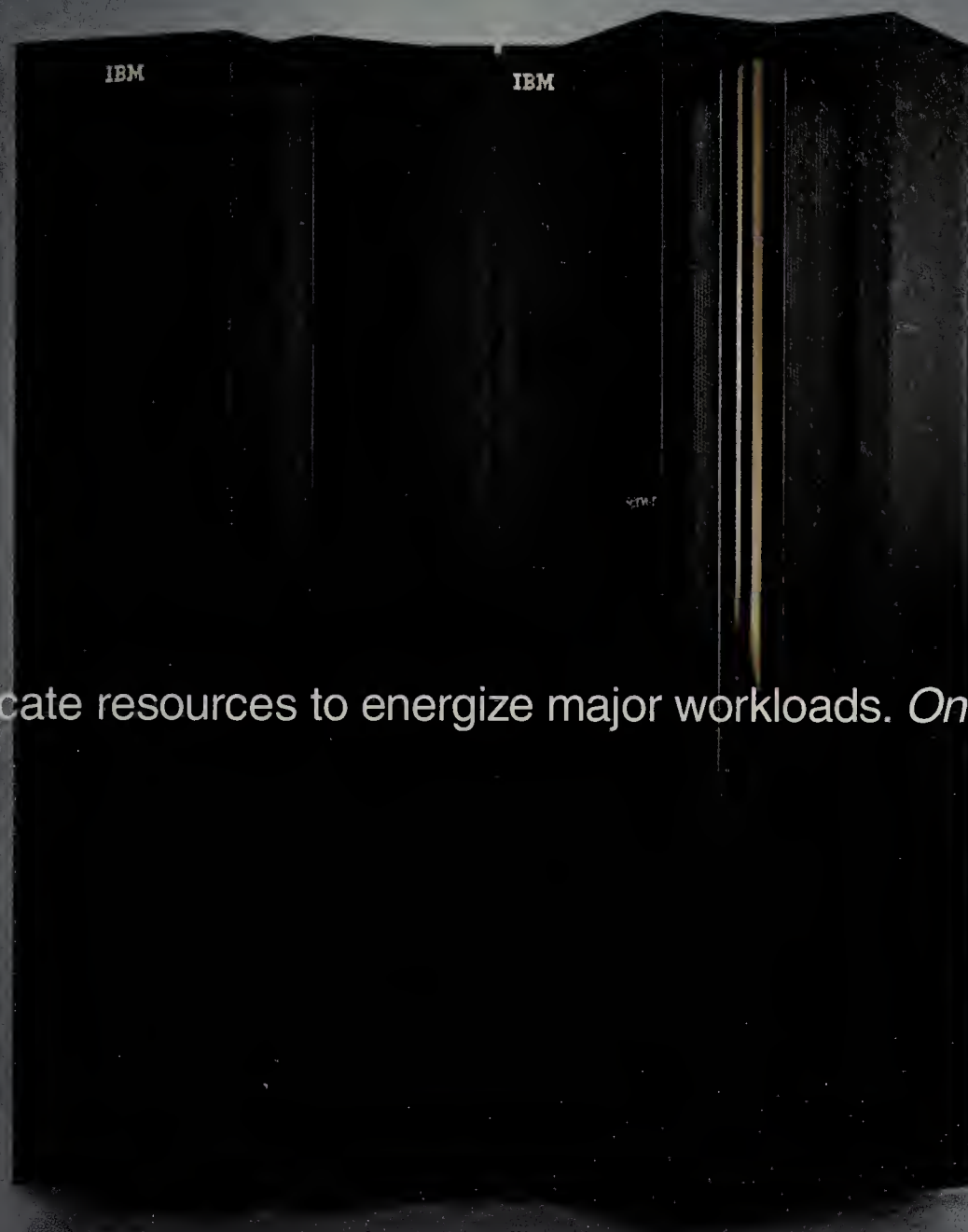
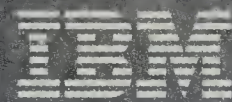
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A person is seen climbing a dark, vertical rock face. The climber is positioned in the center-right of the frame, wearing a light-colored shirt and dark pants. The rock face is dark and textured, with some vertical lines suggesting cracks or fissures. The background is a bright blue sky with some white clouds. The overall mood is one of challenge and achievement.

Breathing quickens to energize major muscle groups.

@server

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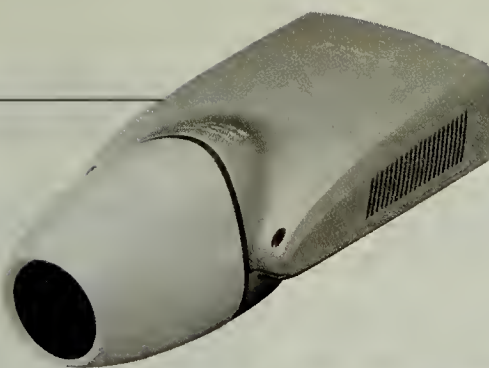
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The Price of E-Payment

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Ethernet's Power Play

In the Technology section: A new standard for delivering in-line Power Over Ethernet cabling could soon make the corporate network a common power source for many network-attached devices. **Page 30**

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ONLINE

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Think Hard Before Starting Your Own Company

CAREERS: As tough economic times continue, some workers unhappy with conditions at their current jobs may consider striking out on their own. Here's a list of things to consider before making the leap.

QuickLink 38594

IM Secure(ity)

SECURITY: Instant messaging systems are an ideal target for fast-spreading computer worms and blended threats, says Symantec Chief Architect Carey Nachenberg. He offers advice on reducing the risk of a security attack on your company's IM systems.

QuickLink 37821

An Introduction to C++ Templates

DEVELOPMENT: How to produce fast, reusable and efficient code using C++ templates, which allow algorithms to be abstracted from their data types.

QuickLink 38646

The Readers Strike Back

E-BUSINESS: Does spam deserve to be protected by the First Amendment? Readers let us know what they think. QuickLink a3200

Kazaa Huzzah!

SECURITY: Peer-to-peer file-sharing applications like Kazaa are as much a headache for security managers as they are for parents, says columnist Marcia J. Wilson.

QuickLink 38246

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On some pages in this issue, you'll see a QuickLink code pointing to additional, related content on our Web site. Just enter that code into our QuickLink box, which you'll see at the top of each page on our site.

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AT DEADLINE

Microsoft to Fix Data Backup Issue

Microsoft Corp. confirmed that a modification to a data backup utility that comes with its operating systems prevents file backup tapes formatted using Windows Server 2003 from restoring data on computers running earlier versions of Windows. The company said it has developed a fix and will release it shortly, after testing and documentation work is completed.

SGI Cuts Jobs, Narrows Focus

Citing a difficult market for its high-end systems, Silicon Graphics Inc. said it has laid off more than 400 employees and is re-focusing on "specific growth areas." Mountain View, Calif.-based SGI didn't disclose any businesses that it will exit but did cite its Linux-based Altix server line and defense industry business unit as bright spots. The layoffs reduced the company's workforce by 10%.

IEEE Approves Draft WLAN Spec

Wireless LAN vendors said the Institute of Electrical and Electronics Engineers Inc. (IEEE) has approved a final draft version of the 802.11g WLAN standard. Performance is expected to top out at about 20Mbit/sec., less than half the 54Mbit/sec. data rate originally touted for the technology. But supporters said 802.11g will be backward-compatible with existing 802.11b WLAN devices.

Short Takes

TREND MICRO INC. in Cupertino, Calif., said it fixed a flaw in a new update of its eManager e-mail security gateway that caused the software to block all messages containing the letter P. . . . **MICROSOFT CEO Steve Ballmer** said he plans to sell some of his stock holdings in the company but added that he remains "as committed to Microsoft as ever."

Critics Question Motives In Microsoft/SCO Deal

Skeptics see licensing agreement with Unix vendor as ploy to curb Linux threat

BY TODD R. WEISS

THE SCO GROUP INC. last week followed up its threat of possible legal actions against Linux users by announcing a Unix technology licensing deal with Microsoft Corp. But many users questioned Microsoft's motives, citing its continuing lack of support for Linux.

The financial details of the contract between Microsoft and Lindon, Utah-based SCO weren't disclosed. Microsoft spokesman Mark Martin said the software vendor agreed to the deal after SCO offered it as a way to ensure that Microsoft products are compliant with the intellectual property claims SCO has made on Unix.

"Microsoft has said for a long time that it respects intellectual property," Martin said. He said the licensing agreement "has absolutely nothing to do" with a lawsuit that SCO filed against IBM in March or its assertion this month that corporate Linux users could face legal liabilities for running the open-source operating system [QuickLink 38514].

Conspiracy Theories

For the past four years, Microsoft has offered software called Services for Unix that lets users run Unix applications on Windows-based hardware as part of migration strategies or to improve interoperability. Martin said Services for Unix is just one reason why Microsoft agreed to the licensing deal, which covers all of its products.

But critics of the two companies said it's hard to believe a vendor as powerful as Microsoft would sign an agreement with SCO unless it thought the move would keep Linux from

posing a competitive threat.

Microsoft "would love for corporations to believe that they will have to pay big licensing fees to SCO for using Linux," said Scott Davis, chief technology officer at Realty Times, a Dallas-based real estate Web site. "Anyone who can interpret Microsoft's announcement as anything other than a PR ploy needs a serious reality check."

Jeffrey Nicholas, a systems analyst at a large New York fi-

nancial services firm that he asked not be identified, said he thinks Microsoft wants to help fund SCO's Linux-related legal actions. "The whole thing to me really doesn't smell right," he said. "It seems like it's all just too coincidental."

In a research note, Tony Baer, an analyst at onStrategies in New York, called SCO's actions "the software industry's equivalent of terrorism." Baer said he "can only conclude that the licensing of SCO Unix is Microsoft's strategy to drive a new wedge into the Linux community, a sector whose growth poses a far more for-

midable threat than the empty roars emanating out of SCO."

The Cendant Hotels division of Parsippany, N.J.-based Cendant Corp. runs about 3,700 servers based on SCO's OpenLinux operating system. David Chugg, senior director of hotel solutions at the unit, said he initially was worried about what SCO's legal campaign would mean for Cendant Hotels. But he said he was reassured when SCO said it would not target any of its own Linux customers. "Out of all the positions to be in, I think we're in the best one," Chugg said. ▀

MORE THIS ISSUE

Shields Up, Linux: Patricia Keefe believes that SCO, not Linux, will end up the loser. **Page 20**

SCO's Stock Plot: Frank Hayes explains why the vendor's recent moves are bad for Linux – and for end users. **Page 58**

BMC Unit Upgrades Help Desk, IT Asset Management Apps

BY MATT HAMBLÉN

BMC Software Inc.'s Remedy Corp. unit this week will announce a new version of its IT service management applications that includes upgrades to tools for tracking the life cycle of IT assets and managing changes to corporate systems.

Both of those areas were neglected during Remedy's prior ownership by Peregrine Systems Inc., said John Ragsdale, an analyst at Forrester Research Inc. in Cambridge, Mass. "Change management and asset management took a back seat during Peregrine's ownership, so Remedy is correcting that," he said.

The IT Service Management 5.5 release also includes revised software for managing help desks and service-level agreements. This is the first upgrade by Remedy since Houston-based BMC bought it from Peregrine in November. Remedy remains a separate company within BMC and is based in Mountain View, Calif.

Health First Inc. in Rockledge, Fla., upgraded to Remedy's Help Desk 5.0 software in

January and plans to install all four of the new modules later this year, said Jose Lanza, IT support and operations supervisor at the nonprofit health care provider.

Health First chose the Remedy software when it set up its help desk operation because of its ease of use and its integration with the other three modules, Lanza said. "This 5.5 release is going to fit just like a ring," he noted.

Heath First operates three hospitals and 65 medical clinics in Florida's Brevard County, and its IT systems support

6,500 employees and other end users. But the company's rapid expansion is causing "huge problems" for the IT staff in tracking the configurations of servers and applications, Lanza said.

Service ROI

The help desk software lets end users create their own e-mail trouble tickets for IT problems and to reassign the tickets to other help desk workers if they're not satisfied with the initial response.

"ROI for Health First is not so much dollars but customer service, and we have that," Lanza said.

Jim Grant, Remedy's general manager, said the new version also includes a Web-based user interface and support for Web services technology. The revisions let users focus not only on helping to reduce their companies' IT costs, but also on aligning corporate technology investments with goals defined by business managers, he said.

Ragsdale said the overhauled user interface in the 5.5 release creates a fully Web-based software client that should be easier for IT workers to use than Remedy's existing applications. ▀

Remedy's IT Service Management 5.5 Applications

■ Available now, they start at prices ranging from \$10,000 to \$35,000, plus per-user fees that start at \$1,600 to \$29,500 for five users.

■ They run on top of Remedy's Action Request System, a software server priced at \$20,000.

IBM Outlines Changes in Store for DB2

Upgrades mainframe version, adds .Net support, new OLAP features to others

BY MARC L. SONGINI
LAS VEGAS

IBM last week detailed a series of changes coming to its flagship DB2 database, including an upgrade of the mainframe version of the software that will support 64-bit addressing capabilities.

Version 8 of DB2 Universal Database for IBM's zSeries mainframes will also provide an increased number of memory buffer pools to improve system performance, said Tom Rosamilia, the company's vice president of worldwide data management development. In addition, IT managers will be able to make changes to databases without bringing systems down, Rosamilia said at the annual North American conference of the International DB2 Users Group (IDUG).

IBM is also adding a feature that will let mainframe systems administrators recover old data by using a combination of system memory and off-line storage. For example, the upgrade will be able to roll back to a database log from a previous day, Rosamilia said.

IBM has yet to set a shipment date for the upgrade. But initial field tests have begun,

DATABASES

and Rosamilia said the company plans to start making the software available to more beta testers this summer.

Joe Carola, manager of database administration at Siemens Medical Solutions in Malvern, Pa., said the Siemens AG subsidiary is an early tester of DB2 Version 8 for z/OS and is eagerly awaiting its release. In particular, database managers at Siemens Medical Solutions

Additional Releases

DB2 Warehouse Edition, which combines various business-intelligence tools into a single offering, is due to become available June 27.

DB2 Information Integrator, which lets end users access multiple databases with a single query, was released last week.

want to take advantage of the promised database schema evolution capabilities. Those will allow them to propagate changes on the fly to DB2-based systems at hospitals that use the company's IT products and services, Carola said.

Carola also said that the 64-bit support will let Siemens cut costs by reducing the amount of hardware it needs to run DB2 applications. He added, though, that he still

wants IBM to offer easier-to-use management tools, better training and free resources to help companies migrate applications running on Oracle or SQL Server databases to DB2.

IBM has added support for Microsoft Corp.'s .Net technology to the Unix, Linux and Windows versions of DB2, enabling Microsoft tools to be used to craft applications for the database. That capability is part of a DB2 Version 8.1.2 release that's available now.

In addition, IBM is partnering with developers of business-intelligence software to deliver multivendor "cube views" as part of the online analytical processing (OLAP) capabilities in DB2. Due next month, the cube-view function will let end users access a single OLAP cube with front-end analysis tools from different vendors without having to reformat the data, said Rosamilia.

David Beulke, president of Chicago-based IDUG and a

consultant at Pragmatic Solutions Inc. in Alexandria, Va., said most of the companies he works with use a mix of data analysis applications. The cube-view feature should make it easier to do so and simplify the process of integrating third-party analysis tools with DB2, he added.

Carola said the cube views could come in handy at resource-strapped companies that don't have enough CPU processing power to easily break down and reload OLAP cubes for use with different analysis tools. But he added that most of Siemens Medical Solutions' data warehousing applications are based on SQL Server, not DB2.

Cube views caught the eye of Robert Catterall, director of strategic technology for the e-commerce division of Check-Free Corp. in Norcross, Ga. Speed of development is important to the team building the company's enterprise data warehouse, he said, and the technology could help improve productivity in serving Check-Free's OLAP needs. ▀

Cisco Unleashes Cascade Of Network Security Tools

BY MATT HAMBLIN

Cisco Systems Inc. announced 14 security products and services last week, including three new products and a key revision to its flagship security management software, which now supports threat-protection technology gained in the April acquisition of Okena Inc.

The Okena technology, now known as the Cisco Security Agent (CSA), monitors user behaviors and takes steps to stop those that a company deems objectionable before they can cause harm, said Jeff Platon, senior director of product and technology marketing at Cisco.

CSA doesn't try to match signatures to prevent malicious activities, but it follows behaviors. For example, if a desktop user tried to launch a suspicious application, CSA would

stop the launch, Platon said.

The technology resides on desktops and servers but is supported by the upgraded CiscoWorks VPN/Security Management Solution (VMS) 2.2, which is also being enhanced to support the Cisco Catalyst 6500 firewall and virtual private network (VPN) services modules.

Other Cisco announcements include a new one-touch router-lockdown capability and intelligent wizards for configuring firewall and IPsec VPN services on certain Cisco routers.

Centralized View

Radiology Associates of Ocala has been using the previous version of the management software, VMS 2.1, for eight months to manage security at six sites for a variety of de-

vices that are used by hundreds of physicians and radiologists each day, said Jonathan Houghton, associate director of IT at the Ocala, Fla.-based health care provider.

"VMS gives us one place to manage all our security devices, whether they are VPN boxes or firewalls, meaning we can monitor the devices and any attempts at attacks on the network," he said. "It's loaded on a server, and you get through to any Web browser, meaning there's only one place to look, which is just beautiful."

[CiscoWorks] VMS gives us one place to manage all of our security devices.

JONATHAN HOUGHTON,
ASSOCIATE DIRECTOR OF IT,
RADIOLOGY ASSOCIATES OF OCALA

Houghton said he is eager to look at the 2.2 release after having gained so much value from 2.1. "We've got to have all this security, especially with new federal privacy compliance and a lot of confidential information we have to protect," he said.

Jeff Wilson, an analyst at Infonetics Research Inc. in San Jose, said the 14 Cisco announcements are "small but important to somebody out there," but taken together, they show that the company is focusing its attention on many areas of security.

Cisco has "quietly insinuated" itself into the security market, with \$1 billion in related hardware and software sales annually, Wilson noted.

The VMS upgrade is important, Wilson said, but "no vendor is good at this yet," because there are dozens of arcane security standards. "It's hard to build good security management solutions," he added. ▀

Cisco's New Security Products

These five offerings are available now:

- **Cisco IOS AutoSecure for one-touch router lockdown**
PRICING: Free to customers with SmartNet support deals
- **Cisco Security Device Manager 1.0**
PRICING: Free option on 830-3700 series routers
- **CiscoWorks Security Information Management Solution 3.1**
PRICING: Starts at \$40,000
- **Cisco IP Solution Centers 3.0 Security Technology Module**
PRICING: Starts at \$6,000
- **CiscoWorks VPN/Security Management Solution 2.2**
PRICING: Starts at \$7,995

Sun Undercuts Intel Server Competition

Price war possible, but rivals say not a fair comparison

BY PATRICK THIBODEAU

SERVER PRICE CUTS have become common since the economy and IT spending stalled, and they rarely raise eyebrows anymore. But Sun Microsystems Inc.'s decision last week to take direct aim at Dell Computer Corp. in the low-end Intel server market could force the two other full-service vendors, IBM and Hewlett-Packard Co., to act similarly.

"If you are a buyer and you got a lower price from Sun, you can absolutely use that as a negotiating point against HP and IBM," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H. Sun's move "definitely puts pressure on the other players," said Sarang Ghatpande, an analyst at D.H. Brown Associates Inc. in Port

Chester, N.Y. But he also said price is more of a starting point in customer selection.

Competitors dismissed Sun's action, saying it won't ignite a server price war. Sun "lacks the staying power in this sector of the market," said Hugh Jenkins, a vice president of marketing in the industry-standard servers division at HP. "Sun would really rather sell you a great big Solaris system."

Razor-Thin Margins

"The Intel space is already a very competitive marketplace that runs on razor-thin margins," an IBM spokesman said. "We don't see Sun as being able to either start or sustain a long-term price war." Neither IBM nor HP disputed Sun's lower-cost pricing claim, but they said it wasn't a fair comparison because the products don't have identical features or warranties.

Sun said it's now making two low-end servers running one or two Intel Pentium Xeon

processors with either the Solaris x86 or Linux operating system, starting at \$2,450.

Sun said a comparatively priced HP server costs \$3,238. But HP contended that the Sun server doesn't offer similar features, such as an embedded RAID controller.

The announcement was coupled with a move by Oracle Corp. to ensure that its products run on Sun's Solaris x86 and its other systems. Oracle believes the importance of these low-end systems is increasing.

"Big machines aren't going to disappear," said Oracle CEO Larry Ellison. "However, the future of computing [is] low-cost components being assembled into large, large, high-performance computers."

Ellison joined Sun CEO Scott McNealy only a month after appearing with Dell CEO Michael Dell, who, without naming Sun, bashed makers of what he described as propri-

Sun Backs Red Hat on Linux

Six weeks after discontinuing its own version of Linux, Sun last week said it will sell and support Red Hat Inc.'s Enterprise Linux operating systems on its Intel-based servers.

Sun stopped marketing its Sun Linux 5.0 distribution last month, after users shunned the software because they didn't want to install and support multiple versions of the open-source operating system [QuickLink 37505].

Dan Kusnetzky, an analyst at IDC in Framingham, Mass., said Sun's new strategy of partnering with Red Hat makes more sense than its attempt to go it alone on Linux. He expects Sun and Red Hat to

work together to make Linux as reliable as Sun's Solaris operating system.

Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston, agreed that the alliance with Red Hat is a smarter direction for Sun to take. "I don't know anybody who thought Sun having their own Linux was a good idea," he said.

Red Hat Enterprise Linux will be available from Sun by the summer and will be supported on Sun's recently announced x86-based systems, including the Sun Fire V60x and V65x, the two companies said.

— Todd R. Weiss

etary Unix systems. Oracle said that there was nothing contradictory about Ellison's Dell appearance and that the database vendor is only interested in giving users choices. But the move sparked discussions between Oracle and Sun. Ellison, at the time, "may not have known we were as seri-

ous with our x86 strategy," said Souheil Saliba, a vice president at Sun.

Dell had the following reaction to Sun's move: "There is a lot of competition — and that means customers are getting a whole lot more value," said company spokesman Bruce Anderson. ▀

Network Associates Upgrades Sniffer Line

BY MATT HAMBLIN

Network Associates Inc. announced the Sniffer Network Protection Platform last week, which includes a new appliance and revisions of existing software that analysts said will push the vendor into a growing network security market.

The new appliance will allow the faster data monitoring needed for the largest network cores, said Christopher Thompson, vice president of product marketing of the Sniffer division at Network Associates in Santa Clara, Calif. Upgrades to three network management products were designed to work from the core to the network edge, he said. The tools will help customers

save time troubleshooting network outages or preventing malicious threats, providing "dramatic ROI for customers," he claimed.

Among the products is the new Sniffer Technologies s6040 for core Gigabit networks within large organizations. It's designed to capture data for use in network management functions at up to 8Gbit/sec. The s6040 could be deployed in the core of a large institution and used to monitor performance in a branch facility, Thompson said. The company also announced new versions of its Network Performance Orchestrator products and a revision of its Sniffer Distributed RMON+

software for remote monitoring (see chart).

The state of Indiana is testing many of the new products and has been using more than \$500,000 of Network Associates' products for more than two years to monitor and protect a network serving 40,000 users at 830 sites, said Jeffrey

Duke, a senior network engineer for the state.

Duke expects to deploy the s6040 once the state converts to a Gigabit Ethernet core. He also plans to upgrade to Sniffer Distributed 4.3 because it offers more features, including the ability to analyze IP traffic passing through the network.

When the SQL Slammer virus hit, Sniffer software quickly and correctly told network managers that a virus was causing problems, although managers were mistakenly convinced that a crashed router was the source of all the network downtime, Duke said. Sniffer installations the state made two years ago paid back their costs in several months, because the monitoring has helped reduce troubleshooting time to 10% of what it was before, he added.

The new products help bring Network Associates, a traditional network management vendor, into the network security fold, said Eric Hemmendinger, an analyst at Aberdeen Group Inc. in Boston. With these products, Network Associates will compete against Cisco Systems Inc., Symantec Corp. and Netscreen Technologies Inc. ▀

Sniffer Network Protection Platform

AVAILABLE IN JUNE	PRICING
■ Sniffer Technologies s6040 appliance. A modular 4U rack-mounted chassis; up to eight ports in four modules.	Starts at \$50,000
■ Sniffer Network Performance Orchestrator Visualizer 2.1. Produces expanded reports on network performance.	Starts at \$40,000
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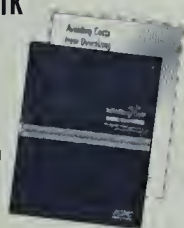
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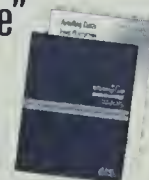


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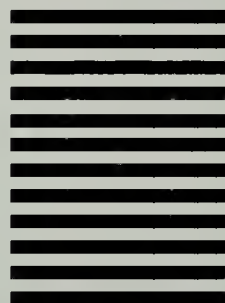
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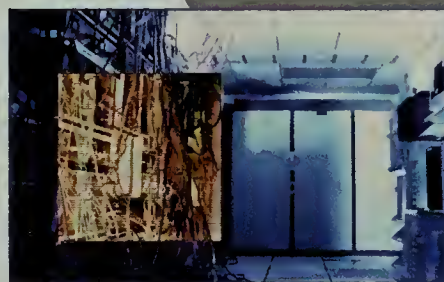
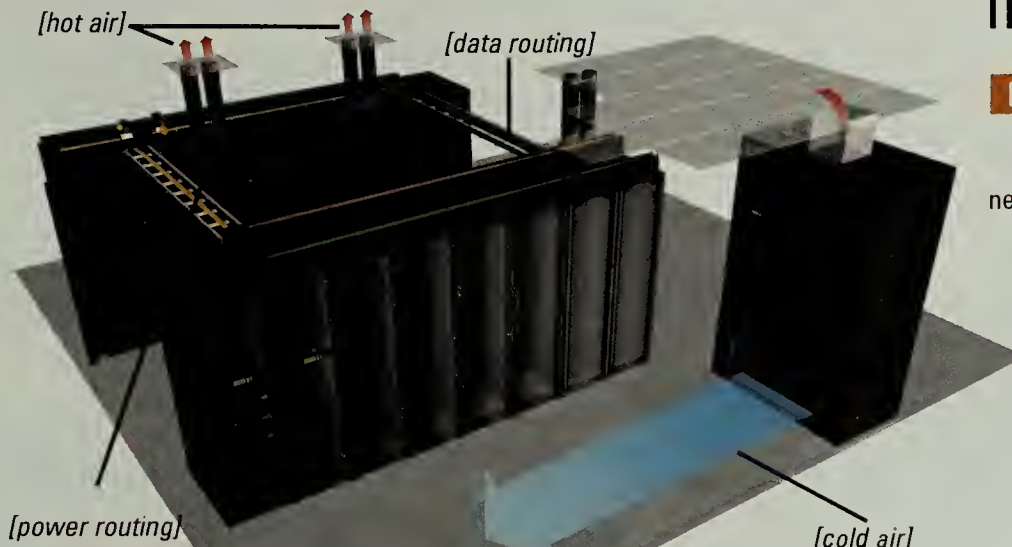
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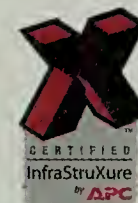
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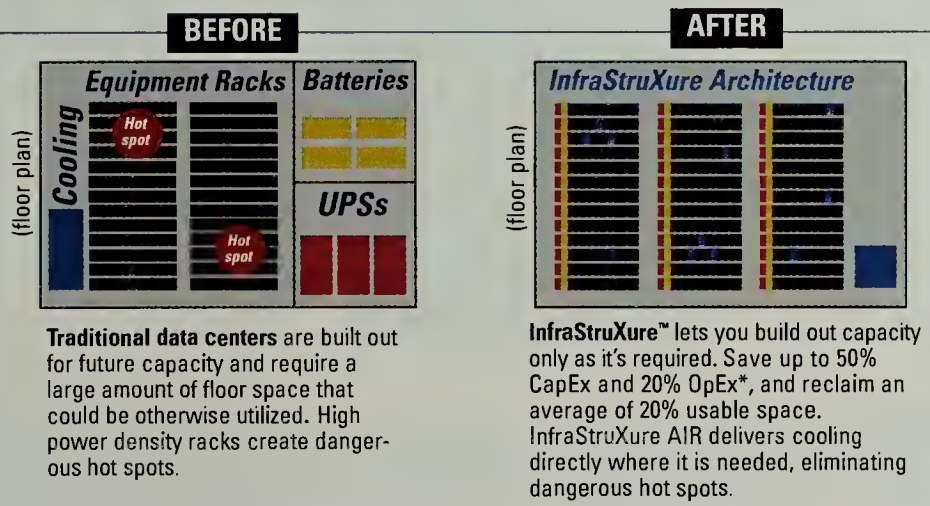
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MARK HALL ■ ON THE MARK

BRIEFS

Microsoft Warns of Spoof E-mail . . .

Microsoft Corp. warned users about an e-mail worm that began spreading last week via messages purporting to be sent from support@microsoft.com. The worm, W32/Palyh@MM, modifies the Windows registry so that the worm is launched whenever infected systems are turned on. It isn't destructive, but it will mass-mail itself to any e-mail addresses it finds on a PC.

. . . And Sets Up Virus Info Service

Microsoft also said it's working with Network Associates Inc. in Santa Clara, Calif., and Trend Micro Inc. in Cupertino, Calif., to give users more information about viruses and other Internet security threats. The companies announced a program called the Virus Information Alliance through which they plan to make threat assessments and other information available to users.

IBM PCs Get Hyperthreading

IBM announced the first models of a new PC line called ThinkCentre. The company said the systems include easy-to-remove components, tools for automating procedures like data backup, and support for hyperthreading capabilities that Intel Corp. added to its Pentium 4 chips last week. Dell Computer Corp., Gateway Inc., Hewlett-Packard Co. and Acer America Corp. also introduced PCs that utilize Intel's hyperthreading features.

Short Takes

SAP AG released an upgrade of its corporate sourcing and procurement software with support for real-time auctions and other new features. . . . GARTNER INC. said worldwide relational database sales fell 6% last year to \$6.6 billion, down from \$7.1 billion in 2001.

Orange Alert Status Adds To Importer Woes . . .

. . . but even Middle East traders can avoid shipment slowdowns in the current atmosphere of heightened security with the right technology, claims Mahipal Lunia, director of product solutions at Open Harbor Inc. "The delay in most imports is an information lag," he says. It won't shock you to learn that the San Carlos, Calif.-based application service provider (ASP) offers a centralized service to help get goods in your supply chain cleared through customs in 60 countries. In four nations — Malaysia, Ireland, China and Brazil — Open Harbor users

can even file all customs paperwork electronically. When will U.S. imports go all-electronic? Probably this year, but Lunia wasn't able to give a precise date. More interesting is that the U.S. government has approached Open Harbor about using the ASP's technology as a centralized system for immediately communicating security alert changes to importers. Again, nothing firm yet, but something to watch. ■ While supply chain automation bogs down in U.S. Customs warehouses, it's speeding up in the offshore apparel business. New Generation Computing Inc. in Miami Lakes, Fla., is currently in the final stages of determining what new features to add to its e-SPS 2004 release due early next year. Designed for clothing makers that have outsourced manufacturing operations overseas — which is almost all of them — e-SPS lets users run their manufacturing processes as if they still owned the plants. Users of

the current release get instant data on work in progress, quality assurance reports, shipment tracking and other details. In the 2004 upgrade, they'll get a data mart to query and a Tablet PC module that will let plant managers overseas update information while roaming around facilities. ■ Whether it comes from overseas or right next door, spam continues to

Easy Integration

Cysive Inc. in Reston, Va., will upgrade its Cymbio Interaction Server software with a 4.0 release in early July. The new version of the application integration tool will come with a visual development studio that's designed to let programmers draw pictures of how applications interact and then drag in Web services components to link the disparate systems. Other goodies will include real-time monitoring of application transactions.

torture corporate IT operations. Mike Deerfield, CEO of Deerfield Communications Inc., says the only thing that can stop spam is to eliminate it on the Internet's backbone — the dozen or so Domain Name System root servers that link everything together. "But that will take a U.N. of spam," he says, because of the international distribution of those network hubs. Until then, you might want to consider the Gaylord, Mich., company's new product, VisNetic Mail-Permit 1.0, which goes into beta in two weeks

and should be ready for download in early July. Why? Deerfield says the on-premise software uses both permission-based and filtering techniques to stop spam. If you use only one method, he argues, unwanted mail will continue to seep through, leaving your company vulnerable to employees passing around viruses and porn. And the latter could put you at risk of being hit with harassment lawsuits. "The courts look to see that companies are offering reasonable protection to their employees. As tools improve, courts are likely to expect protection to be increased," Deerfield contends. ■ Speaking of vulnerable, IBM's WebSphere and BEA's WebLogic application servers have an increasingly strong open-source competitor in Atlanta-based JBoss Group LLC. Concurrent with next month's JavaOne conference in San Francisco, the company will hold a shadow event called JBoss 2 and will unveil its JBoss 4.0 developer release. The software includes a framework that lets programmers apply system-level attributes, like security processes and distributed caching, to simple Java-class code. And, like all things open-source, you can't beat the \$0 price tag, which no doubt has IBM and BEA sales staffers worrying about their commissions.

■ Web services technology will get a big boost at the end of June, when Picture Services Network Inc. in Chapel Hill, N.C., goes live with its UDDI directory for photographic needs. The directory, which uses UDDI technology from Systinet Corp. in Cambridge, Mass., will serve both corporate users and consumers, and it's expected to pick up momentum late this year when applications supporting the Common Picture Exchange Environment (CPXE) standard reach the market. According to Jack DeMarti, director of strategic initiatives at Eastman Kodak Co., CPXE apps will let users get online services from the UDDI directory. He said Kodak will be one of the companies offering such apps. ■

GM Offers Wireless Options to Fleet Buyers

BY BOB BREWIN

General Motors Corp. said it plans to offer corporate buyers of its pickup trucks and vans a packaged wireless data and fleet-tracking system based on Gearworks Inc. software and Nextel Communications Inc. data phones.

GM is targeting the Etrace xt wireless option at companies that own fleets of 15 to 50 vehicles, said Tim Cavanaugh, marketing product manager

for fleet and commercial operations at GM.

Couriers, cable TV companies, and plumbing and HVAC contractors are seen as the likely purchasers, he added.

Cavanaugh said he expects a "slow start" for the wireless package but anticipates that the program will grow consistently while providing GM with an edge over its rivals.

Scott Hull, vice president of marketing at Eagan, Minn.-

based Gearworks, said the GM package includes Nextel phones and the company's Web-based back-office software. According to Hull, Gearworks will host GM truck-fleet customer applications on its servers, with access available over the Web. Since Nextel's phones include a built-in Global Positioning System receiver, the software will allow dispatchers to track the location of individual vehicles in

the fleet, according to Hull.

Using the Java-based phones, which offer data speeds between 20Kbit/sec. and 40Kbit/sec., dispatchers and service workers in the field will be able to exchange simple text-based messages.

The GM service is free for a year, Hull said. After that, fleet owners can continue using the service under a plan with monthly fees of \$34 per phone for Gearworks support and \$32.99 per phone for Nextel data services. ■

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Feds Plan Biometrics For Border Control

Technology details not finalized, but \$400M system is due for use next year

BY DAN VERTON

THE U.S. Department of Homeland Security (DHS) last week offered the first public details of a proposed border-control system that will use biometric technology to authenticate the identities of visitors and immigrants entering the U.S.

A request for proposals from technology vendors is scheduled to be issued by the fall, and deployment will begin by year's end, said Asa Hutchinson, undersecretary for border and transportation security at the DHS. The agency has allocated \$400 million in funding for the U.S. Visitor and Immigrant Status Indication Technology (VISIT) system, Hutchinson said.

The centerpiece of VISIT,

he said, will be biometric identifiers that the DHS hopes will help authorities confirm the identities of foreign visitors, check them for possible criminal histories and track their movements more closely.

Starting next January, the DHS will authenticate a visitor's identity through a minimum of two biometric identifiers and then check the identity against terrorist and criminal watch lists. Fingerprints and photographs will be used at first, Hutchinson said. As the technology is perfected, additional identifiers, such as scans of irises or facial features, may be added.

Hutchinson didn't disclose details about how VISIT will

be configured. But he said the system will also capture data about visitors' immigrant and citizenship status, nationalities, countries of residence and U.S. addresses.

Eventually, that data will be integrated with information in the Student Exchange Visitor Information System, which is operated by universities to

track foreign students. In addition, the data will be analyzed for visa violations and other irregularities by a new Office for Compliance within

the DHS Bureau of Immigration and Customs Enforcement, Hutchinson said during a speech at the Center for Strategic and International Studies in Washington.

However, Rafi Ron, a former chief security officer for the Israeli Airport Authority, said at this month's Terror &

Technology online conference that the effort to improve border security at U.S. airports is focused too heavily on technology.

Ron, who now runs a Tel Aviv-based consultancy called New Age Aviation Security, advocates a broad security program that includes human-behavior analysis techniques in addition to biometrics.

Although IT projects like the Transportation Security Administration's proposed CAPPs II data mining system will provide some passenger-profiling capabilities, Ron said

their reliance on information stored in databases is a weak point. "There are no global databases that refer to... profiles of people who may become terrorists," he said.

At Boston's Logan International Airport, which signed a \$500,000 contract with Ron's firm last year, undercover Massachusetts State Police officers now roam the terminals and parking garages looking for specific behavior patterns, said Jose Juves, a spokesman for the Massachusetts Port Authority, which manages the airport. ▀

MORE ONLINE

To read an interview with the former head of security at El Al Israel Airlines, go to

QuickLink 38637
www.computerworld.com



Asa Hutchinson (left), undersecretary for border and transportation security at the DHS, observes a U.S. Customs officer checking the paperwork of a Mexican citizen attempting to enter the U.S. in San Luis, Ariz.

IT Risks, Physical Threats Change Corporate Approaches to Security

Collaboration key to getting support

BY JAIKUMAR VIJAYAN
PHOENIX

A combination of increased IT and physical security threats and new regulatory requirements is transforming the manner in which security functions need to be viewed, implemented and managed, said attendees at the SecurIT 2003 Summit here last week.

For instance, it's becoming increasingly important for companies to look at IT and physical security threats from a unified risk-management perspective, said Dennis Treece, director of corporate security at the Massachusetts

Port Authority in Boston.

As one of the executives in charge of securing Boston's Logan International Airport, plus three seaports and a major toll bridge, Treece is focused primarily on physical infrastructure protection. But he also oversees the IT side—for example, sitting in on all meetings regarding the implementation of a new Gigabit Ethernet LAN at Logan.

Such unified oversight of security functions is not only necessary but inevitable, Treece said. "At the end of the day, the board is going to see no difference between network and physical security. There's going to be a single security budget line item. It's all the same risk," he added.

The need to comply with emerging data privacy regulations and other laws also means that IT security organizations will have to collaborate better with corporate legal, audit and human resources departments, according to Robert Degen, senior vice president of corporate security at First Data Corp. in Denver.

Such alliances will become crucial in securing the money and support needed to implement enterprisewide IT security approaches, Degen said. "You can't go it alone like a Don Quixote," said Degen, who, like Treece, oversees both IT and physical security. Degen reports to First Data's chief auditing officer, an

arrangement that he said has helped to keep security a top issue at the board level.

Jude Ogunleye, a systems administrator at Cascade Natural Gas Corp. in Seattle, said he's thinking of having the company's network tested and analyzed by a third party to

highlight weaknesses that could be exploited. The idea is to demonstrate "how much money you can lose with a downtime," Ogunleye said.

While getting funding for IT security initiatives is easier than it was a few years ago, "a business case for information security will most likely still have to be made in almost all organizations if drastic changes in funding or staffing are expected," said Jason Witty, director of global security architecture at Aon Services Corp., a subsidiary of the \$8 billion Aon Corp. in Chicago.

To get upper management's approval for the resources needed to secure systems, Witty recommended giving demonstrations showing how easy it is to compromise data, explaining regulatory requirements and presenting internal measurements that depict infosecurity problems needing to be solved. ▀

IT Security Trends SecurIT 2003

- Unified management of physical and IT security
- Increased collaboration between security, HR, audit and legal functions
- A melding of business continuity and security functions
- Growing pressure to balance security measures with operational needs

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BRIEFS

HP Reports Q2 Profit, Plans Cuts

Hewlett-Packard Co. reported a \$659 million profit on revenue of \$18 billion for its second quarter, which ended April 30. CEO Carly Fiorina said all business units were profitable except for HP's Enterprise Systems Group, which lost \$7 million. The company plans to lay off another 3,500 workers by October but will add 4,000 new jobs as part of several IT outsourcing contracts that it recently won.

Itanium Version of HP-UX Is Upgraded

In other HP news, the vendor released an upgrade of the HP-UX 11i operating system for its servers based on Intel Corp.'s 64-bit Itanium processors. HP said Version 2 of the operating system supports systems with up to 64 CPUs. Other features include a pair of IT security configuration tools and support for HP's workload and partition management software.

WorldCom Agrees To Pay \$500M Fine

WorldCom Inc. announced a proposed deal with the U.S. Securities and Exchange Commission under which the company would pay a \$500 million civil penalty to settle charges of accounting irregularities. The settlement deal still needs to be approved by U.S. District Court and U.S. Bankruptcy Court judges, said WorldCom, which is now doing business under the name MCI.

Short Takes

IBM said it plans on June 6 to ship Linux-based clustered systems built around its Blade-Center line of blade servers. . . . New York-based **INFORMATION BUILDERS INC.** announced Web-Focus 5 Autonomic Server, a software package that monitors server clusters running data analysis applications.

WorldCom Wins \$20M Bid to Build Baghdad Cell Network

GSM selected over CDMA technology to support up to 10,000 U.S. personnel

BY BOB BREWIN

THE DEPARTMENT of Defense has awarded WorldCom Inc. a contract valued at about \$20 million to install a cellular communications system in Baghdad. It also has mounted a massive logistics effort to turn on limited cellular service in the Iraqi capital next month.

The system being set up by WorldCom — which is now operating under the name MCI — will be used to facilitate communications between U.S. personnel in Iraq, said Air Force Lt. Col. Ken McClellan, a Pentagon spokesman. "The

ability to communicate is a crucial tool to advance security interests as well as humanitarian efforts," McClellan said. He added that the cellular system could be used by up to 10,000 people.

Sources familiar with the plan said users will include

U.S. civilian and military personnel in Baghdad and possibly workers from humanitarian aid organizations. All access to the system will be controlled by U.S. officials, they added.

A WorldCom spokeswoman declined to provide any details about the planned cellular telephone system except to

say that the company will meet a deadline to activate the service in June.

Mark Smith, a spokesman for the GSM Association in London, said the network being installed by WorldCom is based on the Global System for Mobile Communications (GSM) standard used by other countries in the Middle East. The GSM Association is working with WorldCom and the U.S. government to secure the Iraqi network, he said.

Technology Ties

In March, Rep. Darrell Issa (R-Calif.) introduced a bill seeking to require the Pentagon to use Code Division Multiple Access (CDMA) cellular network technology in Iraq instead of GSM. CDMA was developed by Qualcomm Inc.,

which is based in San Diego.

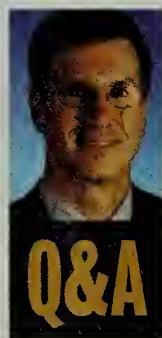
But Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., said it makes more sense to install a GSM system in Baghdad because all the countries surrounding Iraq use that technology. About 80% of the world's cellular networks are based on GSM technology, Mathias added.

The sources said WorldCom has tapped Stockholm-based LM Ericsson Telephone Co. to supply the GSM equipment, including 17 cell towers and associated equipment. WorldCom has also installed a satellite earth station in Baghdad to connect the cellular system to networks it operates for the Defense Department in the U.S., according to the sources.

They said shipping all the equipment to Baghdad required a mammoth logistics effort that involved five C-5 cargo aircraft, the largest planes the Air Force operates. The equipment delivery was completed May 16. ▀

Nextel Exec Says Corporate Users Are Starting Small on Wireless Applications

BY CRAIG STEDMAN



Santoro's duties include managing the rollout of the corporate wireless data services the Reston, Va., company announced last August. Santoro this month spoke with Computerworld about the status of that offering and other issues in the wireless market.

Are the economy and tight IT budgets making it hard for you to convince companies to invest in wireless services? We're delivering a consistent set of new subscribers every quarter — 400,000 to 500,000 net adds. And in the enterprise space, close to 40% of the customers are signing up for a data ser-

vice. It sounds funny to say it, but I think the economy is helping us. It's real easy to get these programs going without having to go through a long approval process. Most of the deployments we've been involved in have started with a clearly defined project.

Are most of the projects still small in scope? Last year was lots of little projects. This year, it's a lot of deployments within functional groups. I expect by later this year to see location-aware services and more enterprisewide deployments.

What about the issue of wireless security shortcomings? Is that affecting sales? I would say some of the black eye that wireless has on security has bled over into the more traditional mobile space. But it's very easy to encrypt information within a corporate environment and

extend that to the phone — that's basically extending a VPN to the phones. Wi-Fi, on the other hand, remains a concern. Our approach to the wireless LAN is to offer it as a tool on a [corporate] campus. We don't currently offer a hot-spot capability.

Are there other issues that corporate users say need to be addressed before they go ahead with wireless projects? One thing that does come up from customers — and we can prove that it's not an issue — is reliability. It's inherently difficult to guarantee [service-level agreements] on wireless networks, and corporate customers want SLAs. But our back-end connections to the Internet are redundant, and we've put a lot of energy into ensuring that our data environment is hardened and well secured. We've optimized everything that we can.

How do you think your iDen mobile network stacks up against rival ones based on GSM and CDMA technology? The biggest difference people like to talk about is speed. But frankly, to most IT people I've talked to, speed is a sexy thing but it turns out to be the fourth or fifth item on their priority lists. Coverage and the ability to deploy applications and support them are higher. When you look at all the dimensions, iDen stacks up pretty well, except that it happens to be somewhat slower.

Do you have anything in the works to boost the speed? We have an option of going to an advanced version of iDen, which would quadruple our data rate. We're currently in the process of looking at that.

Why not jump right on it? Nothing's free. It's not that hard or that expensive, but there's work to be done. If customers were breaking down the door saying they needed higher speeds, we'd be jumping on it tomorrow. But they're not. ▀

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ISS Adds 'Virtual' Patching

Upgrade aims to ease IT security

BY JAIKUMAR VIJAYAN

Internet Security Systems Inc. (ISS) this week will upgrade its Dynamic Threat Protection software suite with enhanced vulnerability assessment and intrusion-detection tools.

A key capability enabled by the new technology is a "virtual patch process" that Atlanta-based ISS said will reduce the need to apply so-called hot fixes for protecting against viruses and worms that ex-

ploit system vulnerabilities.

The virtual process is designed to let security administrators block certain types of traffic and look for particular virus signatures or suspicious data patterns using vulnerability information gathered by the company's upgraded Internet Scanner 7.0 tool.

ISS also plans to soon release a Catastrophic Risk Index that lists some of the most dangerous security vulnerabilities. The index will give users more information on what to defend against and how to do it, said ISS Chief Technology

Officer Chris Klaus.

The vulnerability identification and proactive defense measures being offered by ISS could save companies from having to install patches or develop manual work-arounds every time a new security flaw is found, said Andrew Plato, a principal consultant at Anitian Corp., a Beaverton, Ore.-based security consultancy.

"If nothing [else], it buys time for companies to apply patches," Plato said.

Such tools can be very useful but are not a full replacement for the patching process,

said Eric Beasley, a senior network administrator at Baker Hill Corp., an application service provider in Carmel, Ind.

Baker Hill is using an application-level firewall from Teros Inc. in Santa Clara, Calif., that has functions similar to the ones developed by ISS to protect its farm of Web servers based on Microsoft's Internet Information Server software.

The firewall blocks all but a very narrowly defined set of traffic from reaching the servers. That has allowed Baker Hill to defer hot fixes and wait for Microsoft to roll out service packs incorporating patches, Beasley said. "That doesn't mean we have a policy

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of not keeping our Web servers updated. It just means we have a more relaxed time frame for doing so," he said.

The virtual patching features are only a part of a wider range of intrusion-prevention capabilities being touted by security vendors. Other companies, such as Sanctum Inc., Kavado Inc. and Teros, also offer tools that use behavioral rules, usage models and correlation engines to enforce authorized network behavior. In some cases, these tools can automatically prevent unauthorized or malicious code from executing on systems.

However, users have so far been cautious in their acceptance of such technologies, citing their immaturity, lack of promised functionality and tendency to block legitimate as well as malicious traffic. ▀

Netegrity Updates Identity Management Software

Netegrity Inc. last week rolled out a new version of its IdentityMinder software featuring integrated user administration and application provisioning capabilities.

The upgrade is aimed at letting IT administrators automate the tasks of creating and managing user identities and controlling access to systems based on those identities, said Deepak Taneja, a vice president at the Waltham, Mass.-based company.

Netegrity's product is the latest in an emerging category of

software from vendors such as IBM, Novell Inc. and Oblix Inc. that ties together access control, authentication, authorization and application provisioning functions.

"It is really all about service delivery and user productivity, by giving them the right access to the systems they need, much faster," said Jonathan Penn, an analyst at Forrester Research Inc. in Cambridge, Mass.

From an administrative standpoint, the centralization and automation provided by such

technologies can save time and money, Penn said.

For instance, IT managers can automate the processes of adding new users or groups, changing access rights, delegating password management and deleting user accounts.

A slew of short- and long-term issues is driving the need for such products, according to Albert Braunberg, an analyst at Current Analysis Inc. in Sterling, Va. Among them are the growing adoption of Web services, the

need to secure business-to-business transactions through better identity management, and corporate IT's focus on ROI, he said.

But Braunberg added that products like IdentityMinder are unlikely to appeal to anyone other than very large corporations.

Netegrity's new release integrates the company's existing access control functionality with application provisioning software developed by Business Layers Inc. in Rochelle Park, N.J. The two companies announced a partnership earlier this year.

- Jaikumar Vijayan

Continued from page 1

Identrus

products instead of doing that itself, Wendel noted.

The combination of problems has prevented Identrus from becoming a moneymaker, despite a roster of founders that includes ABN Amro Holding NV, Bank of America Corp., Citigroup Inc. and Deutsche Bank AG.

Identrus claims that more than 60 financial institutions have signed up to issue digital certificates for e-commerce transactions. But thus far, many of the banks have used the company's technology only to establish sets of PKI

rules, Wendel said.

After Identrus' marketing capabilities are beefed up, Wendel plans to begin selling annual subscriptions to the company's PKI network, as well as professional services.

Five years from now, she said, "I want there to be so many digital certificates out there that if you were to count them, you'd run out of space on your calculator."

Wendel "is interested in going after the eBays of the world, and they need this kind of technology," said

Avivah Litan, a financial services analyst at Gartner Inc. in Stamford, Conn. But they're not using it now, she added.

In February, Gartner surveyed 200 business-to-business companies with \$100 million or more in annual revenue and found

that none were using digital certificates, Litan said.

What's more, a separate survey of 135 banks conducted last year by Gartner revealed that less than 5% of them had issued digital certificates to corporate customers, and less

than 3% had done so for retail customers.

Most of the companies that responded to the two surveys expressed interest in digital certificate technology, Litan said. But none of the nonbanking businesses had even heard of Identrus, she added.

Jane Hennessy, senior vice president in charge of Wells Fargo & Co.'s international banking group, said the San Francisco-based company is close to launching a beta test of Identrus' digital certificate technology with several corporate customers.

"I think the strong rules set [and] the security processes make it about as secure as we can get to make sure docu-

ments are authentic," Hennessy said. Another expected benefit is the interoperability of Identrus' certificates among the different banks that have joined its network. "You don't have that with most other [digital certificates]," Hennessy said.

Wendel, 45, was formerly CEO of eFinance Corp., a San Mateo, Calif.-based software vendor that develops products for gauging the financial soundness of customers and business partners. She said her plan for Identrus includes the development by early next year of a digital certificate that banks, brokerages and other companies can use to authenticate retail customers. ▀



New CEO Karen Wendel said Identrus needs to do a better job of marketing its PKI-based technology.

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PATRICIA KEEFE

Shields Up, Linux

DOES A DESPERATE SCO have a leg to stand on? Is a conniving Microsoft really behind The SCO Group? Is Linux headed for a deep freeze?

Those were among the questions being hurled about last week as angry users and industry observers reacted to the latest salvos fired against operating system upstart Linux.

First, B-grade vendor SCO filed a \$1 billion lawsuit against IBM,

charging that its intellectual property had made its way into IBM's Linux distribution. Then there was the not-so-shocking revelation last week that Microsoft, which just licensed SCO's Unix technology, has been quietly urging its sales staff to offer huge discounts to users in order to undercut Linux. Also last week, SCO suddenly dropped out of the Linux market and threatened users with intellectual property violations. That action has made a few people nervous, and ticked off many. (Mailing threatening letters to 1,358 CEOs of Fortune 2,000 companies is not on the Harvard Business School's list of top 10 ways to win new business and influence the installed base. It's a bad move in any economy, much less this one.)

The cynics say the lawsuits and threats are a last-ditch effort by a has-been company pushing its has-been version of Unix. The conspiracy theorists see Microsoft's hand behind SCO's actions. Still other observers warn against a rush to judgment, dismissing paranoia about Microsoft's shadowy role and preferring to hear SCO out before making up their minds.

If SCO were smart, it would continue to support both Unix and Linux. It's already invested in the UnitedLinux consortium to build a standard release of the operating system. Momentum is clearly behind the still-maturing Linux, which is increasingly being seen as the successor to its OS papa, Unix, and the great hope of the anti-Microsoft crowd. So why not be open to that?

Instead, SCO is cutting off its nose to spite its face. A loss or slowdown for Linux is really a win for Windows — not Unix. That's certainly the battlefield as Microsoft sees it, and it has the slush fund, er, firepower, to make that perception reality. And there's no end of online posts from users swearing they will never buy another SCO product [QuickLink a3180] and from developers seeking to expel the company from the open-source community. That's not good for a vendor



PATRICIA KEEFE is a Computerworld editor at large. You can contact her at patricia.keefe@computerworld.com.

hoping to maintain relationships — though perfectly fine for business executives hoping to unload a company, which is yet another theory being bandied about (see Frankly Speaking, page 58).

It's all bad for Linux in any case, and it's bad for those who want technology choices. Ultimately, it's bad for users, especially those pioneers who have taken the Linux plunge. At a minimum, it has the potential to take a lot of wind out of Linux's sails. How IT reacts to this pincer move by SCO

and Microsoft should carry a lot of weight. Indeed, if SCO plans to take a page from the music industry by making an example out of a few user companies, it had better pick its targets with care.

But fear not. Open-source is here to stay. Too many people want choices, and they especially want out from under the tyranny of the Windows-only boot. And the very fact that Microsoft is openly willing to buy out users considering Linux points to two things: the strength of Linux's attraction, and the real threat posed to Microsoft by the increasing number of foreign governments that have instructed their agencies to either not buy Windows or to prove that a cheaper alternative doesn't exist. And that's getting to be a tall order as Linux tackles platform after platform.

The real page-turner here is not what Microsoft will do (we know it will do everything it can to dominate whatever market it's in), or who prevails in the SCO/IBM lawsuit. It's what the Linux camp will do. Will they fold up their tents and go home, or press on, adding to the momentum behind Linux and keeping the open-source banner flying? Stay tuned. This can only get more interesting. ▀

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PIMM FOX

BI Software Gets Smart

BUSINESS INTELLIGENCE is an oxymoron at some companies. But others are finally getting the tools that deliver decision-critical data to the right people in the right way.

Traditional business intelligence (BI) users depend on relational data sources or applications such as ERP, CRM or supply chain management systems. However, with the changes afoot in reporting and online analytical processing (OLAP) technology, as well as trends in scorecards and dashboards, useful BI tools can reach more end users, which should change your BI operations strategy.

BI vendors such as SAS, Business Objects, SAP and Cognos are responding with suites that they claim are easier to deploy. For example, most of these suites can perform multiple functions for different applications while accessing various databases, so you don't need to force-fit the links between them. Investments in extract, transform and load technology for BI support are paying off, too. It's now possible to blend real-time information from data warehouses with enterprise applications like ERP and CRM.

Connections, whether via a relational database management system or an OLAP engine, are routine for these new types of BI suites. The reasons are clear. Decision-makers need to do ad hoc queries on relational and OLAP databases. They also need to perform calculations and create metrics to be displayed across the enterprise. And they won't jump from app to app to do it. So enterprise portals with dashboards running modeling and business-performance tools are also part of new BI offerings.

But does all that technology make BI useful? I think so. First, it helps to identify and track customer profitability and retention. Second, reductions in operational costs by rationalizing suppliers are more easily accomplished with BI. Third, companies need better financial transparency, given our current atmosphere of shareholder and regulatory scrutiny. BI can help here.

Finally, senior management no longer lets lines of business run their own shows, relying only on quarterly reports. Top managers are digging deeper into daily operations. They need access to information to make decisions before decisions are made for them. This will push companies to standardize on BI systems that offer comprehensive views of the enterprise without sacrificing or compromising data sources, reporting structures or time frames.

Smart businesses know that their data is valuable. Smarter ones are investing in the new tools so they can better make informed decisions throughout their organizations. ▀



PIMM FOX is a freelance writer in Santa Barbara, Calif. Contact him at pimmfox@pactell.net.

Squaring Off Over Offshore Outsourcing

FIND IT OUTRAGEOUS that your April 21 publication devoted significant copy to providing instructions, points of contact and glowing testimonials from corporate bean counters regarding how corporations may best proceed with the permanent destruction of American IT jobs by moving them to places like India and the Philippines ["The Best of Both Shores"]. It is a how-to manual.

In a companion article, a corporate staffer noted in an offhand way that they laid off some of their best IT people because their jobs had been moved offshore. You casually note how Microsoft, a company with over \$40 billion dollars in cash reserves, is moving jobs offshore "to cut costs."

This while the H-1B law still on the books enables huge numbers of foreign nationals to come to this country to compete for jobs against hundreds of thousands of unemployed American IT workers on their own soil.

Offshore outsourcing isn't about efficiency. It's about savage greed. Will our government make available funds to retrain laid-off software engineers in new occupations? Please, pray tell, what exactly do you retrain a permanently unemployed software engineer to do? Why don't you write a few articles about that?

J.S. Powers

Software engineer, Fairfax, Va.

HOPEFULLY, Jim Honerkamp, CIO at Clipay Corp., has had his compensation package appropriately reduced ["Surviving Offshore Cutbacks"]. His responsibility has been reduced. His head count has been reduced. Just as he is fulfilling his corporate responsibility to the bottom line, one could reasonably expect corporate officers to fulfill their responsibility by reducing his compensation. Or better still, perhaps they could find a suitable replacement for him at a reduced cost.

Rick Church

Maynard, Mass.

Welcome to the Real World

SO MARCUS COURTNEY, president of the Seattle-based Washington Alliance of Technology Workers, bemoans the current trend to take IT jobs out of the U.S. ["The New IT Worker: Angry and Proactive"]? Sorry, I had to laugh. Welcome to the real world, Mr. Courtney. This has been happening to America's blue-collar workers for the last 40 to 50 years.

Gary W. Lake

Operations shift supervisor, Edison Mission Operations & Maintenance Inc., Grant Town, W. Va.

REGARDING the well-done report "Exporting IT Jobs," this situation seems to be an example of what Adam Smith called the "invisible hand" - cheaper foreign labor replaces expensive local labor. While it is a hard pill to swallow, threatened IT workers are hardly the first to suffer from this sort

of change. It seems to me that certain IT professions cannot be moved offshore - infrastructure setup requires actual presence, as does project management. Programmers, however, need to see that they are the white-collar equivalent of factory workers - the computer doesn't care about the location of the person punching the keyboard. While my sympathies go out to those caught in this difficult situation, in the grand scheme of things, there is little that can be done.

Bob Fately

Van Nuys, Calif., f8lee@mindspring.com

IN HIS COLUMN, "Magna Cum Unemployed," Donald Finley says, "When I changed my college major from mechanical engineering to computer science... the salaries of the two professions were comparable, and IT seemed to be thriving." Was his choice of a career based primarily on salary? As one who makes hiring decisions, I want applicants with a passion for technology, not for money. The H-1B visa program has outlived its usefulness and should be jettisoned. But H-1B is merely Finley's scapegoat. IT got fat, lazy and sloppy during the 1990s and attracted those looking for a fast buck. I, for one, am glad the economic downturn thinned the ranks of those flocking to the big bucks purportedly earned in IT careers. What we're seeing now is the pendulum swinging back toward equilibrium. It's too bad that Finley and others like him are in its path.

G. O'Hara

IT director, Chicago, garyoh@ameritech.net

U.S. Risks Losing IT Edge

STEVE ANDRIOLE is quoted in the article "The New IT Worker: Angry and Proactive" as saying, "Technological innovation is still largely U.S.-centric. In manufacturing, it's not." That's true, but

what has let our leadership in manufacturing innovation slip away is the simple fact that most of it is done elsewhere. We cannot possibly remain the leader in something we don't put hands to and do ourselves. Andriole also notes that there's a much faster development cycle in IT than in manufacturing. But that faster cycle means we will likely lose our IT edge faster, too, once most IT work is done offshore.

Shawn Kelly

Solar Turbines Inc., San Diego, sdkellysdaa@yahoo.com

Security Ignored

ONE THING not considered in the article "There's More to Consider Than Cheaper Labor" is security. As an IT auditor, I would be more concerned about back doors and security weaknesses in a project programmed by an outsourced staff than I would with one programmed by staff still happily employed by my company.

Roger T. Brown

IT audit manager, Jefferson Health System, Philadelphia, brownr@einstein.edu

THE SECURITY ISSUE that was raised in "Offshore Coding Work Raises Security Concerns" not only pertains to code but to business information as well. As U.S. companies outsource application support to offshore companies, they are providing access to their core business information to the employees in these offshore providers. There is not only a risk of sabotage, but also a risk of corporate espionage.

R.B. Murphy

Framingham, Mass.

IN "Offshore Coding Work Raises Security Concerns," nobody pointed out that much of our

financial code is handled overseas. I've worked for top 10 banks and large investment houses, and I know that much of their work is done overseas. Overseas workers have access to more financial information than financial companies will admit.

Brian Barrette

Boston

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WHAT THEY'RE READING



These letters are responses to several articles and columns about offshore outsourcing that have appeared in *Computerworld* recently, including the following:

May 5, 2003

"Offshore Coding Work Raises Security Concerns"
QuickLink 38219

April 28, 2003

"Bank's IT Workers Threaten Strike Over Outsourcing Deal"
QuickLink 38023

Special Report: "Exporting IT Jobs"
QuickLink 38007

Opinion: "Magna Cum Unemployed"
Quicklink 37945

April 21, 2003

"The Best of Both Shores"
QuickLink 37522

Opinion: "Readying for a Trip Offshore"
QuickLink 37545

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QuickLink a3100
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EMERGING TECHNOLOGIES Ethernet's Power Play

Thanks to a new standard for delivering in-line Power Over Ethernet cabling via products like this Avaya switch, the corporate network will soon become a common power source for many types of network-attached devices. **Page 30**

Q&A

Avoiding Data Center Blowups

Neil Rasmussen, CTO at American Power Conversion Corp., says that despite technology advances, data centers still suffer from some basic vulnerabilities. **Page 32**

FUTURE WATCH

E-Commerce on the Fly

Mobile commerce has been slow to catch on as users balk at shopping with cell phones and PDAs. But advances in handheld devices, wireless networks and user interfaces could finally make it a reality. **Page 34**


DAVID PLUNKERT

Business-to-business e-payment systems can slash processing costs, but they require substantial integration and business-process changes. BY ROBERT L. SCHEIER

IMAGINE that you have to find the fraudulent calls in a 100,000-page phone bill. Or that an invoice for employee health insurance offers little more than a guess as to who is covered in a given month. Or that four out of 10 checks you receive require human assistance to figure out what the customer bought. That's reality for many business-to-business transactions today, and that's why there's so much interest in electronic invoice presentment and payment (EIPP) systems.

EIPP involves automating everything from how the seller presents an invoice to how a customer pays the bill. The most obvious savings come in staff, paper and postage, but vendors say that as much as 85% of the benefits result from eliminating manual work such as negotiating billing disputes with customers and cutting refund checks.

Last year, Stamford, Conn.-based Gartner Inc. estimated that an organization could realize a return on an investment in a system that sends business invoices over the Web in one year

if just 2.3% of customers opted to view and pay invoices online. The average project costs between \$130,000 and \$400,000, and savings average \$5.7 million annually, or \$7.25 per invoice, according to Gartner's research.

Gartner estimates that about 15% of the invoices sent by large businesses result in a dispute that costs between \$20 and \$40 per invoice to resolve. With EIPP, customers can view bill details, submit challenges and even make partial payments online.

Health Alliance Medical Plans Inc. expects to achieve a return on its investment in an EIPP system within two and a half years, says Lynn Carroll, director of finance at the Urbana, Ill.-based managed health care provider. The savings will come from reductions in administrative expenses and a decrease in benefits paid to employees who left their jobs but whose employers didn't notify Health Alliance quickly enough.

To achieve such benefits, however, Health Alliance and other users must make their way through a thicket of products and services in a still-emerging market, link their EIPP systems to back-end systems and — most difficult of all — change their business processes to accommodate online billing, payments and problem-solving.

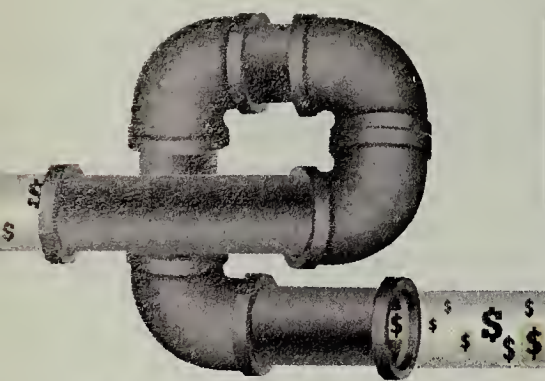
EIPP

Software or Service?

Some vendors, such as Edocs Inc. in Natick, Mass., and Avolent Inc. in San Francisco, offer packaged EIPP software. Others, such as Xign Corp. in Pleasanton, Calif., and Metavante Corp. in Milwaukee, offer EIPP as a hosted service. Some vendors focus on billers; others focus on payers, based on the assumption that large customers can push their suppliers to adopt new online technologies.

Many billers tend to opt for packaged software, whereas payers tend to purchase EIPP as a service, says Brian Valente, vice president of marketing at Avolent. As a biller, Carroll decided against buying an EIPP service, fearing

The Price OF E-PAYMENT



The Price OF E-PAYMENT

Continued from page 25

that it would be too hard to customize.

If customization isn't a prime requirement, however, an EIPP service can be much faster to implement than packaged software, says Penny Gillespie, an analyst at Cambridge, Mass.-based Giga Information Group Inc. She advises payers to investigate whether the per-transaction pricing of an EIPP service might become more expensive than a software purchase as transaction levels rise.

According to Xign President and CEO Tom Glassanos, payers sign up for a certain volume of transactions at a specified per-transaction price. For a large customer with more than 100,000 transactions a year, Xign charges about \$1.50 to \$2 per invoice and 75 cents to \$1 per payment. In contrast, he says, it usually costs \$8 to \$10 for a payer to process an invoice and issue a paper check. Billers use the service free of charge, he says, since the payers receive most of the cost benefits.

One large customer, Payless Shoe-Source Inc., chose Xign's service over software-based EIPP because it will work with the shoe retailer's PeopleSoft ERP system and be easy to link with other Web-based payment systems. It will also be easy to implement with limited IT resources, says Tim Devine, director of purchasing at the Topeka, Kan.-based company.

Payless plans to use Xign to distribute invoices to about 45,000 vendors, he says. Devine expects a payback within two years from cutting administrative costs and qualifying for early payment discounts with suppliers.

Getting the Data

After deciding whether to purchase EIPP as software or as a service, customers must choose how to link the EIPP system to their existing applications and data required for automated bill payment and dispute resolution. This includes records of past bills from the billing system and past payments from the accounts receivable system, as well as product return or credit data from an inventory control system.

Customers need access to corporate systems so they can, for example, tell a supplier that they are paying only part of a bill because they are returning damaged goods or that they are paying lower health insurance premiums because some employees have left their companies.

Vendors take different approaches to this data integration problem. For example, Edocs maps data from applica-

tions that produce reports such as an analysis of monthly sales or a list of overdue accounts. Avolent, in contrast, collects that information in a database, from which it can extract data to produce different kinds of bills for different customers or allow customers with billing questions to drill down into data.

Highmark Inc., a Pittsburgh-based health insurer, tried mapping data from reports into an XML-formatted data stream that fed into its initial implementation of Avolent's BillCast software. But that required too much work for the staff supporting those applications, says Al Dodson, manager of electronic bill presentment and payment. In order to map the data from reports the application had already produced, he says, "we needed to know exactly where



Al Dodson,
manager of
electronic bill
presentment
and payment at
Highmark.

the data is on the report." That meant understanding details such as how many spaces wide each data element was. The support staff's reply: "We don't have time to tell you . . . because there could be a million variations," says Dodson.

This summer, Highmark plans to take a different approach: modifying its legacy billing systems so they produce an XML data stream that's exported to Avolent's newer BizCast software as part of the bill-generation process.

That way, Highmark gets the raw data from the billing application without needing to know how that data might be presented on various reports or bills, says Dodson. Having the data in one database also makes it easier to produce a consolidated bill for any Highmark subsidiary.

Other vendors argue that embedding business rules is crucial to automating complex billing relationships. For example, different individuals within a customer organization have different levels of spending authority, says

Noam Potter, eCare product manager at Amdocs Ltd., a provider of billing and CRM software in Chesterfield, Mo. More-profitable customers may also be given more lenient terms in disputes. For example, they may receive an automatic credit for any dispute under \$100, he says. Reflecting these differences requires flexible business logic, a workflow engine and an easy-to-manage user interface, says Potter.

"The biggest challenge in electronic bill presentment and payment is integration," says Giga's Gillespie, referring to the need to have EIPP systems work with back-office applications such as ERP and accounts payable. But most vendors and customers say business process issues are bigger hurdles.

Although Payless had a "minor challenge" linking the Xign service to its PeopleSoft system, Devine says he has had more trouble changing workflows, such as identifying a single contact person in each department who should receive electronic invoices and route them to the proper person.

Carroll says his biggest problem was "understanding who in the organization . . . really owns some of these transactions." For example, he didn't know whether the operations staff or the billing/financial staff was responsible for collecting and managing bills. That's important because Health Alliance needs to provide a single contact for employers that want to make changes such as dropping workers from their health plans.

It's just as well that it takes time to deploy EIPP systems, says Valente. "People can only accept a certain amount of changes before it overwhelms them," he says. His advice: "Understand your customers, and try to deliver value in bite-size pieces." ▀

Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.



Lynn Carroll,
director of
finance at
Health Alliance
Medical Plans.

Where Customers Expect Savings From EIPP

More efficient invoicing	32%
Faster receipt of cash	28%
Easier processing of receipts	20%
Reduced customer service costs	12%
Other	8%

SOURCE: GARTNER INC. SURVEY OF MORE THAN 100 ENTERPRISE CUSTOMERS, JANUARY 2002

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Rajiv Mistry has spent nearly a decade working in enterprise IT architecture. His expertise entails innovative enterprise information technology architectures using the latest advances in technology, data warehousing, data mining and lifecycle management of integrated product development from seed to market.

UNISYS PRESENTS **ask THE EXPERT**

*A few minutes with Rajiv Mistry, Director, Data Warehousing
& Business Intelligence Enterprise Collaboration,
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Enterprise Business Intelligence

> What are the business trends driving enterprise Business Intelligence?

More and more, business professionals require access to real-time business information that flows freely throughout the enterprise. The knowledge worker is no longer a theory; she is running your mortgage refinance process as you talk to her. Telemedicine is no longer an exclusive realm; it can run life support from anywhere globally and deliver decisions and metrics in near real time.

These are the business demands that have given rise to such popular BI applications as CPM (Corporate Performance Management), CRM (Customer Relationship Management), and BAM (Business Activity Monitoring).

To address CPM, BAM and CRM, a thoroughly integrated application architecture envelope must be designed in a manner that allows access to the full range of real time (or operational), tactical and strategic reports in a flexible manner. Applications that were previously unthinkable must become reality to support scenarios like CRM analytics, CPM decision support and BAM-related operational actionability.

> What benefits can companies expect to gain?

There are a number of vital benefits to applying BI within a company, such as the following:

Better decision-making. By accessing necessary information faster and drawing on rich analytical tools to parse the data for vital new insights into issues such as customer buying habits, companies can speed their decision processes significantly, and boost their profits by doing so.

Competitive advantage. Faster decision-making allows companies to deploy new innovations faster, enabling them to get ahead of the competition. Greater agility means being able to maintain this lead.

Customer satisfaction. Customers are always more satisfied when their needs are filled quickly. This happens when execution of internal processes is faster, more efficient and accurate, and when fulfillment of product requests and service requests is done with a greater speed, accuracy and finesse.

Single version of the truth. While most companies talk of getting to a single version of the truth, the fact is there are at least three different ways of perceiving the truth:

strategically, tactically and operationally. A reporting scenario that forecasts a viable strategic direction, creates analytic drillable reports and reveals defects in real time would support a single version of the truth.

> What are the main inhibitors to success?

The main barrier to mainstream acceptance of BI has been the fact that it was previously deemed to be complex to use, requiring specialized skills to read a report and figure out trends. Moreover, the time gap resulting from processing delays could lead to stale data in reports, thus keeping BI out of the acceptable norm in corporate decision making. The advances in Wintel/SQL Server/Analysis Services drive such inefficiencies out and create a more realistic solution that brings BI to the masses and lets the single version of the truth be within their grasp.

There's also a false perception that BI is slow, ironically driven by delays in IT funding. In spite of the fact that a BI investment can lead to revenue growth, difficult economic times have driven fiscal stringency within the technology department, and BI implementations are no exception.

> How can Packaged Solutions provide benefit for BI?

Packaged solutions invariably need some customization specific to the customer needs. However, even taking this into consideration, the speed of implementation is vastly enhanced compared with a custom built solution. This allows customers to address performance, scalability, integration and cost issues rapidly and achieve very good BI reporting results.

Technologies like the Unisys ES 7000 servers address scenarios that are not possible on scaled-out commodity-driven hardware platforms. Specifically, in bringing high performance to bear on reducing batch cycle time, high concurrency loads and large data volume throughput across many vertical industries, this platform has proven to be very robust and cost efficient.

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Ethernet's Power Play

Outlook: The 802.3af Power Over Ethernet standard will soon be a checklist feature on every new LAN switch and will power everything from IP phones to wireless access points. By Robert L. Mitchell

THE IDEA BEHIND the IEEE's Power Over Ethernet (POE) standard, which delivers in-line power to networked devices over unshielded twisted-pair cabling, isn't new.

IP telephony system vendors stole a page from the private branch exchange vendors' playbook when they developed POE technologies several years ago in order to provide a competitive, centralized power source for IP telephones. In-line power gave users more flexibility in placing IP phones and made the task of providing backup power easier (see "Avoiding Data Center Blowups," page 32). But these proprietary systems typically locked users to one vendor's equipment.

The draft POE standard from the Institute of Electrical and Electronics Engineers Inc.'s 802.3af task force should not only bring much-needed interoperability but also deliv-

er in-line power to a wide range of devices, from wireless LAN access points to IP security cameras. "POE is going to be one of those things where people won't even remember when you couldn't get power from an Ethernet jack," predicts Steven Carlson, president of Portland, Ore.-based High Speed Design Inc.

and chairman of the IEEE 802.3af task force.

It's also the first international power-delivery standard. "With 802.3af, the RJ45 jack becomes the only power outlet standard that's supported globally," says David Passmore, an analyst at Midvale, Utah-based Burton Group. While that's not important for access points and IP phones, business travelers may one day be able to trickle-charge handheld and notebook computers, or even run them without lugging power converters and power supply bricks.

The IEEE's 802.3af specification calls for power source

equipment (PSE), which operates at 48 volts of direct current, to guarantee 12.95 watts of power over unshielded twisted-pair cable to data terminal equipment (DTE) 100 meters away — the maximum distance supported by Ethernet. That's enough power to support IP phones, WLAN access points and many other DTE devices (see chart below). Two PSE

types are supported: Ethernet switches equipped with a power supply module, called end-span devices, and a special patch panel, called a midspan device, that sits between a legacy switch and powered equipment, injecting power to each connection.

Power travels over two pairs that are unused in 10/100 Ethernet but do carry data in Gigabit Ethernet LANs. End-span PSEs will work over Gigabit Ethernet, but midspan devices will not, says Amir Lehr, a member of the IEEE 802.3 standards committee and vice president of business development at PowerDsine Ltd., an Israeli company that supplies midspan devices and components.

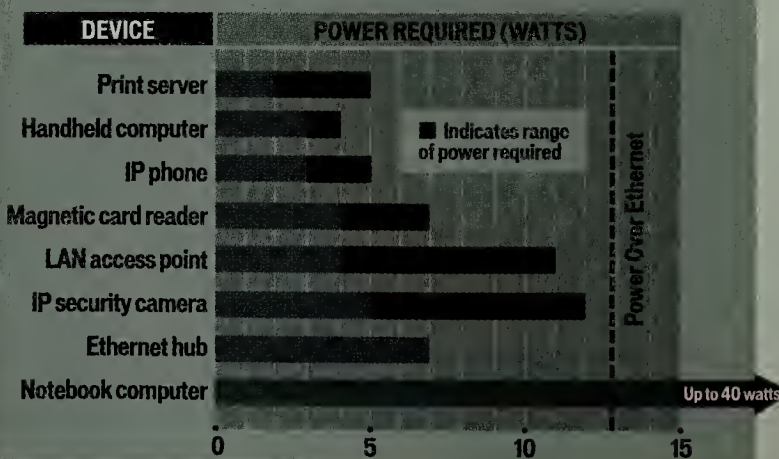
To prevent damage to non-compliant network devices, the PSE requests a special electronic "signature" from the end device before supplying power. It also stops power flow within 10 milliseconds after a device is disconnected from the network, so a user swapping out devices on a port can't accidentally damage the second end device.

The cost to support 802.3af in end devices is negligible, Lehr says, and many vendors offer devices they claim are compliant. Analysts say the specification adds 20% or more to the cost of an Ethernet switch, although Passmore expects prices to drop as volumes increase. But even paying the premium may be cost-effective, Carlson says, be-

EMERGING TECHNOLOGIES

What It Takes

The 802.3af specification can deliver up to 12.95 watts of power per network device. That's enough to run most of these common network devices, which have operating power ranges (red bars) well below the limit.



SOURCE: POWERDSINE LTD., HOD HASHARON, ISRAEL

■ PRODUCTS

Vendors Get Jump on POE Standard

THE DRAFT STATUS of the POE specification hasn't stopped vendors from trotting out an array of early devices. The specification supports the Simple Network Management Protocol, and vendors of power supply equipment differentiate products by offering sophisticated management options and delivering different levels of power.

For example, 3Com's \$2,495 Super-Stack 3 Switch 4400 PWR provides 150 watts of power across 24 ports, while Avaya Inc.'s \$4,295 P333T-PWR POE switch delivers a total of 200 watts. Those average out to 6 and 8 watts per port, respectively. By assuming that you'll need less than the full 12.95 watts



PowerDsine's 6000 series midspan devices

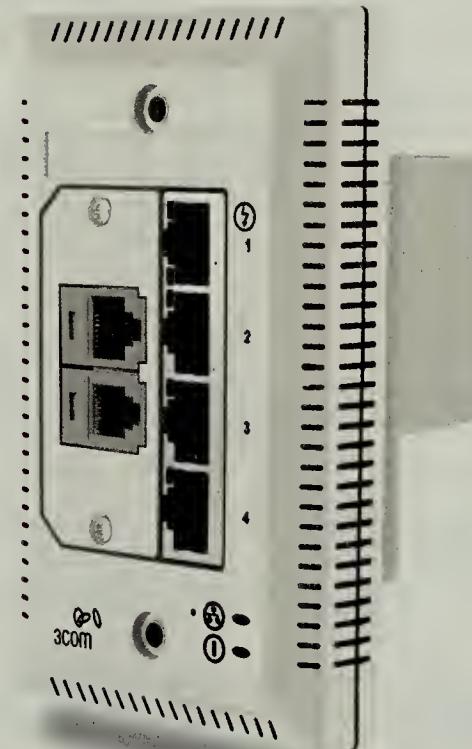
per port, vendors can offer lower prices. But what if you run out of juice?

While the 802.3af standard delivers power sequentially by port number until it runs out of power, Avaya lets you reprioritize the ports, and 3Com also lets you limit power on a per-port basis. If you do

max out, however, Avaya lets you boost power by adding an external power module, whereas 3Com does not. Nortel Networks Ltd. and Foundry Networks Inc. have also introduced compliant switches; Cisco plans to announce a daughtercard for its 6500 series modular switches after the standard is ratified.

Several vendors offer midspan equipment for about half the cost of an end-span switch. PowerDsine's 6000 series midspan products, for example, range from \$99 for a single-port model to \$1,199 for a 24-port device.

As for powered devices, major vendors of IP telephones and WLAN access points either claim to be shipping compliant products now or have announced plans to do so soon. One of the more interesting end devices is 3Com's NJ200 (\$219), a wall-mounted Ethernet switch that runs off POE and then passes power through to one of the unit's four ports.



3Com's wall-mounted NJ200 switched Ethernet hub



Avaya's P333T-PWR POE switch

cause IT doesn't need to run a separate power cable, and Ethernet cabling installations don't typically require the services of a licensed electrician. "It's very easy to put in and very low-cost," he says.

Buying Time

"Most larger enterprises will insist on POE in their new Ethernet switches within two to three years," Passmore predicts. But should you buy now? Current devices are based on a draft specification. Most vendors expect full ratification in July and say any further changes will be minor. But Chris Cullin, product marketing manager at Cisco Systems Inc., says the standard is still preliminary. He doesn't foresee ratification until "later this year."

Cisco wasn't in attendance when six members of the POE Consortium performed inter-

operability tests last month. Cullin says interoperability is "not really that complicated." But Doug Hyde, product marketing manager at 3Com Corp., expects problems right out of the gate. "Many vendors will read the specification differently; they always do. And you'll get incompatibilities along the way," he says.

An industry group formed to perform interoperability testing on early POE devices, the POE Consortium has no plans for independent certification testing along the lines of what the Wi-Fi Alliance is doing for wireless Ethernet. And the Wi-Fi Alliance doesn't plan to add POE testing to its certification for WLAN access points, says spokesman Brian Grimm. Nonetheless, Passmore says it's probably OK to buy early products, as long as vendors guarantee that their products will be upgradable to the final standard.

Gartner Inc. analyst Rachna Ahlawat says the stakes are too high for vendors not to address interoperability issues. Within a year of ratification, she says, POE will "just become another standard feature." ▀

■ INNOVATIONS

You're Plugging in What?

WHILE WLAN access points and IP phones will be the biggest beneficiaries of POE initially, in time a wide variety of powered devices are likely to be attached to corporate LANs as the LAN becomes a universal data and power distribution architecture, says Steven Carlson, chairman of the IEEE 802.3af task force.

Perhaps the most offbeat powered device in circulation today is PowerDsine's novelty adaptation of a Norelco shaver. But users are also likely to see the emergence of more practical powered devices, from IP security cameras like Sony

Corp.'s SNC-VL10N to building automation and control systems.

"You have a vast number of proprietary systems in a building - lighting control, security, heating, keypads, security cameras - and all that has its own cabling structure," Carlson says. He expects all of them to be powered through Ethernet in the future because material costs are lower, cable installation costs are lower because a licensed electrician isn't needed, and TCP and Ethernet establish a common network architecture for these systems.

Amir Lehr, vice president of



Sony's SNC-VL10N IP security camera receives power from and feeds video stream back over a single Ethernet connection.

business development at PowerDsine, says PSEs could be used to trickle-charge handheld and notebook computers if manufacturers design them to accept in-line power. Ethernet may eventually provide operating power for such devices as well, he says, although most notebooks today consume more than the 12.95 watts POE can deliver.

"Certainly there is a case to be made to eliminate a power connection for a desktop or LAN-connected notebook," says Brian Zucker, technology evangelist at Dell Computer Corp. But Zucker adds that he's not aware of anyone pursuing that yet.



PowerDsine, which adapted this razor for POE, believes the technology will open the network to a wide range of powered devices.

THINKING BACKWARD

For some POE products, backward compatibility comes at a price:

QuickLink 38377

Resources: To find more information about 802.3af technology and products, go to:

QuickLink 38378
www.computerworld.com

Avoiding Data Center Blowups

The CTO of American Power Conversion discusses power problems in the data center. By Robert L. Mitchell

Q&A

NEIL RASMUSSEN has worked for more than 20 years at American Power Conversion Corp. developing power protection and management systems. But despite technology advances, data centers still suffer from some basic vulnerabilities. He spoke with Computerworld's Robert L. Mitchell about common weaknesses and how to protect against them.

How is power management changing in the data center?

In the way data centers and network rooms are built, there's more change now than there's been in the last 20 years. It involves developing systems that are much more modular and prefabricated.

There are massive shifts in the whole way these systems are approached. And they will look a whole lot different. Raised floors are going to go away in the data center. And it's going to be a lot easier for people on the IT side to design and maintain data center and network room facilities.

What impact are emerging technologies having on data center power requirements? Blade servers are changing all the rules about how power and cooling have to be done, because the power density is so huge. The average power in a rack in a data center is about 900 watts. IBM already has a blade server [the BladeCenter HS20] that you can stack and get 17 kilowatts. No data center on earth can cool that.

You'll see it advertised with five units in a rack. But nobody can install it that way. They have to put them each in individual racks. If you put a bunch of these in one rack, they'll melt. The idea that you're going to pick up this big floor space is misleading, because nobody can cool the things.

How will the emerging 802.3af Power Over Ethernet standard change power management needs? There's a big benefit, which is with distributed devices like phones or access points, you don't need a UPS [uninterruptible power supply] on every one anymore. I can just put one UPS in the closet.

The downside is it creates a new problem in these



NEIL RASMUSSEN

Job title: Senior vice president, CTO and director of American Power Conversion Corp. in West Kingston, R.I.

Accomplishments: Co-founded American Power Conversion in 1981 and helped launch its entry into power protection devices. Currently, he oversees the company's R&D efforts worldwide. He has also worked in the Energy System Engineering Group of MIT's Lincoln Lab and earned a BSEE and MSEE from MIT.

closets. You need to not only provide uninterruptible power, you have to make sure the place is cool and you have to monitor it.

Are there other issues in managing switches that provide in-line power? The 802.3af specification addresses power allocation. For example, you can put out 13 watts per port, but a lot of the switches are not designed to power every connection to 13 watts. They're going to take advantage of the fact that some are unused or will have a low-power device on them. It's first come, first served.

From a UPS perspective, the risk is that someone could accidentally underpower the system and eventually put more access points on and overload the system. You might start losing runtime [on your

UPS] if the power fails. If it's got twice the load, the UPS is only going to run for half the time. That's a good reason for monitoring the system.

What's most likely to kill equipment in closets: heat, power surges or some other environmental variable? If you put a piece of equipment like a router in a closet today, power failures will cause it to have downtime, but overheating can break it. I'd say heat's a big problem in the closets.

How do you solve the problem? All I need to do is get fresh air in there. So it's going to be an issue involving air circulation, fans and vents and things that have to be put into the closet in some organized and predictable way that's easy for people to buy and install.

Some closets are in tough environments where you can't guarantee that anywhere nearby there is reasonable air. In those cases, there's a need for very compact air-conditioning systems. We need a way to cool without requiring that anything be put outside the building. We have units that take heat and provide cooling locally to an area like a closet and have a dryer-vent-like exhaust hose that sucks hot air out. It provides clean, local cold air, and all you have to do is get that hot air somewhere outside the room.

What is the most common mistake people make in designing data centers? They massively oversize the power and cooling systems. A lot of times people think, I'll oversize it. It can't hurt, right? But when you oversize these systems, the efficiency goes down, and a lot of bad side effects occur. Besides the operating and capital costs, it also impacts the availability of the system.

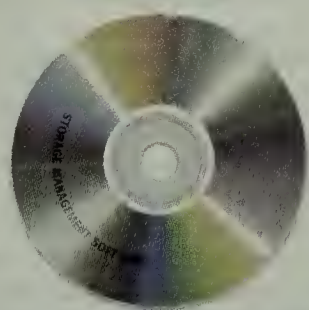
Suppose you put five UPSs in and you only need one. If you have less stuff, it can't break as often. Another example is you oversize your air-conditioning system, and there's excessive airflow going underneath the raised floor. The airflow is moving horizontally faster than it should [and] actually causes a Venturi effect that sucks air down into the floor instead of pushing it up into the equipment. So the equipment is starved for cold air because the air conditioner was oversized. These kinds of things happen all the time, and it's a big problem.

What other issues do you see come up? The second biggest problem is comprehending and understanding human error and the fact that data centers, network rooms and networks are constantly subject to change. Classic case: You go into a rack and rip out an old switch and you put in a new switch. The new switch runs on 208 volts, the old one ran on 120. So you call the electrician. He pulls the service panel off, [and he] can't turn that off because it's running the rest of the data center. So he goes in there and installs wires while the panel is live. This is standard operating procedure in data centers today, rewiring of live panel boards. And people have gotten hurt. But the most common thing is someone bumps a wire, knocks a wire off, trips a breaker or disconnects the wrong wire; they drop loads all the time that way.

People have made huge investments oversizing gigantic UPS installations and cooling systems, and they haven't thought through the issues of how are people going to maintain change control and not destroy this thing while they're changing stuff. ▀

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E-Commerce On the Fly

Mobile commerce is coming your way. By Linda Rosencrance

IMAGINE THIS: You're walking by a pizza shop, and your cell phone rings. No, it's not your mom calling to tell you to remember to wear a sweater — it's the pizza shop calling to offer you a coupon for \$2 off a large pepperoni pizza.

Or what about this: Your pharmacy sends you a text message telling you that you're about to run out of the medication you usually take and asks you if you want a refill. If you click "yes," the pharmacist will get your prescription ready and you can pick it up later or have the pharmacy deliver it to you.

Or this: You're having lunch with a good friend, and you mention to her that you desperately need to see a dentist. She tells you that her dentist, Dr. Goodteeth, is the greatest. Trusting her advice, you whip out your handheld device and make an appointment on the spot.

All of those scenarios, which involve mobile commerce, or m-commerce, will be possible in the next several years, according to Jaclyn Easton, the Van Nuys, Calif.-based author of *Going Wireless: Transform Your Business With Mobile Technology*

(HarperBusiness, 2002).

"Mobile commerce is the use of wireless [devices] to facilitate the sale of goods or services, anytime, anywhere," she says. Although m-commerce has been touted as the best thing since, well, e-commerce, it just hasn't taken off the way experts thought it would in the U.S.

The reason: weaknesses in interoperability, usability, security and privacy, according to Norman Sadeh, a professor and director of the Mobile Commerce Lab at Carnegie Mellon University's School of Computer Science in Pittsburgh.

Sadeh says these issues must be resolved by standards bodies before wireless devices replace our wallets and credit cards and give us access to intelligent assistants capable of anticipating many of our needs and desires and taking care of routine tasks to help fulfill them, such as automatically arranging for taxis to pick us up after business meetings.

One such organization is the cross-industry Mobile Payment Forum in Wakefield, Mass. Billing itself as the bridge between the mobile and financial in-

dustries, the forum is working to create a foundation for secure, standardized and authenticated mobile payments that encompasses all types of transactions.

The Mobile Payment Forum is focusing on payment card transactions but is also addressing key issues such as interoperability passwords, cardholder authentication and encryption methods.

Beyond 'Infotainment'

The Mobile Commerce Lab at Carnegie Mellon is developing a prototype Semantic Web environment, called MyCampus, for context-aware mobile services for enhancing everyday campus life. The Semantic Web would enable machines to make more sense of the Web so the Web in turn would be more useful for humans. (To learn more about the Semantic Web, see "The Web's Next Leap," QuickLink 37596.) The service can be accessed via handheld over the university's wireless LAN.

The MyCampus environment revolves around a growing collection of customizable agents capable of semiautomatically discovering and accessing intranet and Internet services as they help users carry out tasks like planning an evening out, organizing a study group or looking for a place to eat, Sadeh says.

The lab is moving beyond the relatively simple "infotainment" services now offered by the mobile Internet to a variety of mobile applications and services that will assist users in time-critical, goal-driven tasks, like allowing a professor's assistant to schedule activities in the professor's calendar for a Monday using his own handheld device, Sadeh says.

But, he notes, that will require overcoming the inherent I/O limitations of mobile devices through higher degrees of automation and the development of services that understand the context within which their users operate — for example, their locations, the activities they are engaged in, who their friends and colleagues are, and a number of other contextual attributes and preferences.

Sadeh says the Mobile Commerce Lab has already developed a "restaurant concierge," an assistant that can give a user suggestions on where to eat based on information such as his food preferences, the amount of time he has before his next meeting or class, his location on campus and the weather.

Adam Zawel, an analyst at The Yankee Group in Boston, says m-commerce purchases haven't yet taken off because wireless is an inferior medium over which to make these types of purchases.

However, Zawel says that if the interface improves so that it's almost as easy to click through on a wireless phone as it is to make the purchase over a PC, people will be more willing to do so. He says improvements in network speed and latency will help bring about this change, but the main improvement will come from application design.

Zawel explains that when phones have better display capabilities and content providers spend more time developing the necessary applications, use of wireless devices for m-commerce will take off, with remote wireless purchases reaching \$4.5 billion annually by 2006.

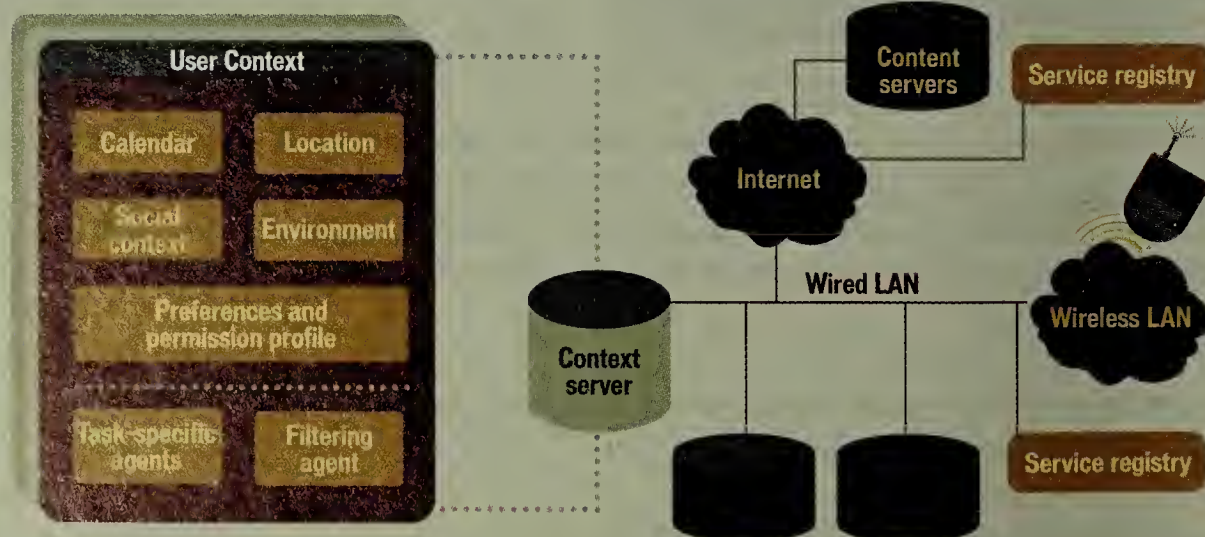
Once the concerns surrounding m-commerce are worked out, it may just become, in the words of Amazon.com CEO Jeff Bezos, "the most fantastic thing that a time-starved world has ever seen." ▀

FUTURE WATCH

In Context

MyCampus users access personalized software agents using handheld devices over a wireless LAN. The agents are "context-aware," taking into account the user's calendar, location,

- lifestyle preferences and other factors. In one application, a "restaurant concierge" agent recommends a place to eat, selected from a service registry, based on the user's food preferences, schedule, location and the weather.



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Office Politics Plays Role In Postmerger Security

A committee meeting falls flat as management withdraws support and the vendor rep in attendance takes a snooze. By Vince Tuesday

MY BOSS loves to tell of his presentation at a Cisco sales conference that ended with audience members standing on their chairs, clapping and hollering with glee. I have to admit I got a different reaction to a recent presentation of mine.

My company has become part of a larger group that is trying to merge cultures. A range of companies makes up the new company, and a headquarters team was formed to bring everything together.

Other companies in the group have outsourced their IT services to a third party (I'll call them "Acme Corp."), but we haven't. Those business units aren't so sure of the details of their security positions. They haven't explicitly listed IT security services in their outsourcing contracts, so there's a gray area. By the letter of their contracts, they don't receive any security services, but they've always managed to get some in the past either by inheriting what Acme does as the standard or by bullying or shaming the vendor into doing the right thing.

The other business units are under pressure from regulators and auditors who want to see compelling evidence that IT security is built in throughout the organization. They are looking for coherent policies, a management structure for security, and clear roles and responsibilities.

I was asked to represent my company at the first group security committee meeting. This team was set up by man-

agers at headquarters who have "security" in their job titles. They invited representatives from each business unit, as well as a one from Acme, whom I will call John.

The aim was to help kick-start the process of sharing information and provide input into policy, roles and responsibility documentation. I'd been invited to talk about the

areas of IT security that my unit covers in-house.

From the moment I arrived, it was clear that the senior staff hadn't reached a consensus regard-

ing the best way to approach this topic. I met a chief security officer who explained that IT security and business continuity were both subsets of what he covered. Then I met the global head of business continuity, who explained that he covered physical security and IT security was a subset of that.

Shortly thereafter, the senior staff's new boss called us all in and told us that headquarters shouldn't be doing

things for group companies such as holding committee meetings like the one we'd all just arrived to attend. Instead, he said, it should carry out a more remote role, checking to make sure we were doing a good job on our own.

This put everything on a difficult political footing, a development that wasn't lost on the global head of business continuity. Just as we finished introducing ourselves, he took a call on his mobile phone, looked surprised and then stood up and announced that he'd been called away to something urgent. I wondered if that well-timed call wasn't from his assistant saying, "Hi, it's me with the fake call you asked for to get you out of that tricky meeting."

A Lost Cause

We began the meeting anyway, with each representative explaining how his unit was approaching IT security. John, the Acme representative, began to slump as each person spoke.

Then I gave my presentation, explaining the areas we cover, what we were hoping other group companies could help us with and what we might be able to offer them.

As I continued my fairly short talk, John's chin kept drifting to his chest and his eyelids lowered. Then, with a snuffle, he'd jerk upright and stare right at me. This was a little unnerving, but I kept talking. I exchanged glances with others around the table. Their knowing smiles and winks reassured me that John wasn't having some kind of seizure.

As I continued, John went totally under, and his body slumped forward. I staggered to the end of my presentation, unsure about what to do.

I quickly sat down and let the chairman of the meeting

take over. He did nothing until about 10 minutes later, when we came to the place in the agenda where John was to report on Acme's approach.

The chair quietly asked John a question and then repeated it again and again at increasing volume until John snapped awake. It was a sight to see as John's head lifted and he began, midsentence, to explain how the business units were getting all they could out of their contracts with Acme.

I later found out that this wasn't the first time this had happened but that John is the brother of the man who runs Acme, so nobody wants to make a fuss.

The meeting ran to its natural close, and I fled back home. As I returned from the strange world of headquarters, I pondered the situation. There's no way you could get away with a performance like John's in our company as a staff member, let alone as a supplier. Perhaps at the next meeting I should make sure we have a lighter lunch or a cooler room. Or maybe I just need to be a more interesting presenter.

Whatever I change, I'm certainly going to be hesitant about getting too close to HQ without a lot of political preparation. Hopefully I can stay away from all that and get on with a refresh of the security basics. I'll be checking password strength, testing for unauthorized modems and providing security awareness training. ▀

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: **QuickLink a1590**

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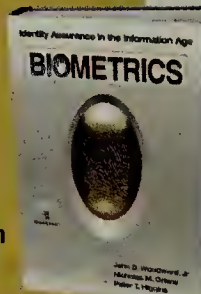
SECURITY LOG

Security Bookshelf

Biometrics, by John D. Woodward Jr., Nicholas M. Orlans and Peter T. Higgins; McGraw-Hill/Osborne Media, 2002.

Woodward and company offer a comprehensive and authoritative text on biometrics that includes many real-world examples. It covers all the major systems and even touches on some strange measures. (Anyone for ear shape or body odor detectors?) If you're thinking of buying a biometric system, read this book first.

— Vince Tuesday



Netegrity Updates IdentityMinder

Netegrity Inc. has announced a new version of IdentityMinder that features integrated identity and access management across Web and enterprise environments. Available late next month, the upgrade offers improved password synchronization and management, role-based provisioning policies, and auditing and reporting tools, according to the Waltham, Mass.-based vendor. It will offer a Web edition of IdentityMinder for Web-based applications, and a provisioning edition for identity management in enterprise applications, networks and databases.

Symantec Offers iSeries Firewall

Symantec Corp. in Cupertino, Calif., has introduced the Symantec Enterprise Firewall for IBM's eServer iSeries systems running Linux. The software can be installed on a logical partition in an iSeries box and supports features such as application-layer proxies, stateful inspection and packet filtering, according to Symantec. Enterprise Firewall eliminates the need for a separate firewall server or appliance to protect iSeries systems. Pricing starts at \$3,995.

“
From the moment I arrived, it was clear that senior staff hadn't reached a consensus as to the best way to approach [security].

**SECURITY
MANAGER'S
JOURNAL**

BRIEFS

CacheLogic Offers Appliance for ISPs

Start-up CacheLogic Ltd. in Cambridge, England, this week will release two high-performance RAID storage network appliances to facilitate routing and caching for large Internet service providers (ISP). Aimed at mitigating network congestion caused by peer-to-peer traffic, the Cachepliance 4000 (CP4000) incorporates 1.4TB of RAID storage and supports the Gnutella and FastTrack network protocols. The CP2000 incorporates 700GB of RAID.

A single CP4000 is designed to serve 50,000 Internet service subscribers; one CP2000 will support 30,000 subscribers. The price is about \$82,000 for 50,000 subscribers, with an additional \$16,500 service fee.

Vendors Offer IM Archiving Service

Iron Mountain Inc. last week announced that it has partnered with four instant messaging (IM) vendors to provide a storage and retrieval service to help financial services firms comply with new regulations affecting archiving of electronic communications. Boston-based Iron Mountain's partners are Akonix Systems Inc., Communicator Inc., FaceTime Communications and IMlogic Inc. The service uses the Simple Mail Transfer Protocol to format messages to make them easy to search by subject or date. The service is included with Iron Mountain's standard e-mail archival package.

Fujitsu Touts 'Ultraportable' PC

Fujitsu PC Corp. announced the LifeBook P5000, a 3.4-lb., full-feature laptop PC that the Santa Clara, Calif.-based vendor calls "ultraportable." It has a 900-MHz Intel Pentium M processor, a wireless LAN connection and a choice of a 40GB or 60GB hard drive. Pricing starts at \$1,549. The laptop will ship this summer.

NICHOLAS PETRELEY

What Microsoft Customers Want

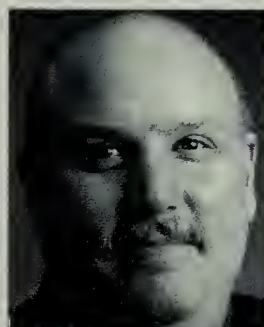
NOW THAT the Microsoft antitrust trial is over and Microsoft is no longer distracted from its full-time effort to eliminate the word *competition* from the English language, I notice that the company's spokesmen have retreated from their daily usage of the word *innovation* and have returned to justifying every product, policy and technology by saying, "This is what customers are asking for." I've often wondered what customers would say if they wrote letters to Microsoft requesting the kinds of things the vendor delivers, so I decided to try my hand at drafting one.

Dear Microsoft:

Thank you for allowing customers like me to define your products and strategies. I'd like to offer some more suggestions, but first I want to comment on your progress.

The omnipresent talking paper clip was exactly as I had described the idea in my previous letter. The shared-source program was also precisely what I had in mind. I want a brief glimpse to make sure the source code exists; I trust you with the actual details. Thanks also for the SQL Server Slammer worm. The Internet has been way too fast lately, so the worm provided a nice temporary respite from all that speed.

Most of all, I want to thank you for solving the problem we had with the decision-makers in our company who don't see the value of constantly upgrading our hardware and software. I was pleased to see that you used my



NICHOLAS PETRELEY, a computer consultant and writer in Asheville, N.C. is the founding editor of "VarLinux.org" (www.varlinux.org). Contact him at nicholas@petreley.com.

idea of threatening a software audit, since I know for a fact that we misplaced most of our licenses. Issuing the threat during tax season was a brilliant addition on your part, since it forced a quick decision without time to think it through.

On the other hand, I have to admit that I was a bit disappointed that you didn't take my advice about increasing the frequency of reboots. I noticed I was able to move the mouse

pointer in the latest version of Windows without the system informing me that I would need to reboot for the change in pointer position to take effect. I still think customers would love this feature, so please consider it for the next version.

As for my latest ideas, let me begin by saying that I strongly suggest that you craft Windows Server 2003 so that it refuses to run existing server applications like SQL Server 2000 and

Exchange 2000. I don't want the option of running any 2000 software on my 2003 operating system because I find it aesthetically unpleasant when the years don't match up.

I really like the idea of the single sign-on feature in Passport, but I often forget my password, and I don't always have access to a computer.

Passport would be much more convenient if you could make it easy for a friend to enter a simple URL that instructs your servers to send my Passport information to his e-mail address.

I appreciate all you've done to limit the abilities of others to view or share my Microsoft Word files. I admit I was a bit worried that your commitment to XML would undo all those years of increasing incompatibilities between file formats, but I was pleased to find out that your XML files simply point to inscrutable Microsoft objects.

Nevertheless, it's time to take this exclusivity to the next logical step. You need to design a hardware standard that encrypts documents, e-mail and even Web content to put this information out of the reach of everyone except people who are using the most recent versions of Microsoft software.

Finally, since you're always asking, "Where do you want to go today?" I was pondering that question and I came up with the brilliant idea: an Internet-enabled portable potty! Surely the whiz kids in Redmond could design something like that.

Anyway, thanks again for consistently delivering precisely what we customers want.

Sincerely,

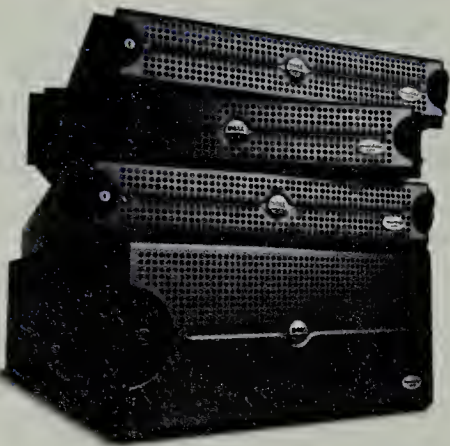
A Satisfied User of Microsoft Software

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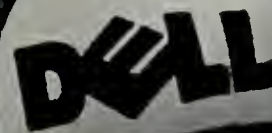


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OPINION

Getting Your Project Priorities Right

Find a way to prioritize your IT investments that will still let you support the business need — then stick to it, says columnist John Berry. **Page 48**

Speedy Recoveries

Baptist Health Care greatly improved its employee satisfaction and service quality by using metrics developed and supported by its IT department. **Page 46**



Surviving Software Upgrades

Implementing upgrades quickly and accurately can earn you points with your boss, improve your marketable skills and make life easier for you and software users. **Page 44**

Going for Broke

When the chips were down, Aviall invested \$40 million in IT. The payoff is a \$431 million boost in sales. **By Kathleen Melymuka**



Aviall CIO Joe Lacik developed relationships with business managers to ensure that IT projects succeeded.

WHEN TIMES ARE TOUGH, the tendency is to hunker down, cut back on spending and wait it out. Aviall Inc. did just the opposite. Faced with a string of financial setbacks that rocked its business, the Dallas-based aviation aftermarket parts distributor decided in 2000 to invest big in IT. Since then, its revenue has more than doubled in an industry where many players are fighting for survival.

"1999 was a challenging year for the corporation," says Paul Fulchino, who came to Aviall in January 2000 as a turnaround CEO. Problems with a new ERP financial system had caused such havoc with orders that nearly 20% of accounts had bailed out. "We lost \$70 million-plus of business," Fulchino says, and the company was hemorrhaging funds in an attempt to recover from the customer service problems.

Fulchino planned to fix the system and give customers and suppliers easy access to information, efficient order processing and updates on order status. But he also wanted to transcend traditional distribution services by providing market intelligence, just-in-time inventory, superior delivery performance and one-stop shopping for customers.

For suppliers, the plan was to increase sales by linking their related products online so customers could find them more easily. Overall, the goal was to

Aviall Inc.

MARKET WEAKNESS: Customer service problems with new financial IT system resulted in the loss of \$70 million and 20% of accounts.

SOLUTION: Overhaul order processing and integrate systems to enhance sales and demand forecasting.

IT'S CHALLENGE:

- Get the board's support for a \$40 million IT investment.
- Complete the ERP project within one year.
- Upgrade inventory control and offer more parts and pricing options to customers.

OUTCOME: Increased customer base and number of suppliers; revenue has more than doubled since 1999; sales calls have tripled without adding members to the sales force.

provide customers and suppliers with financial, technical and sales advantages by dealing with Aviall. "We just needed to invest in technology to allow this to happen," Fulchino says.

That's where CIO Joe Lacik comes in. Lacik had been hired in late 1999 by the previous management team, and he and Fulchino started together on the first workday of 2000. "I told my wife, 'Honey, this could be my shortest job ever,'" Lacik recalls. But Fulchino was willing to stick with the team he inherited. "My message was the same to everyone: 'You've got six months to show me what you can do,'" he says.

"He had such a clear and crisp vision of what he wanted to do with the company," Lacik recalls. "I just had to figure out how to make it happen."

Fulchino's first challenge was securing financing for a multimillion-dollar IT investment. "You have to spend a buck to make two," Fulchino says, "but bankers would rather spend 10 cents and lose 20." He had to work hard with lenders to get initial funding, then show quick-hit successes for continued financing. As the plan evolved, Fulchino decided to make it all a quick hit. Initially, the turnaround plan was to play out over several years, but he compressed it to a year.

"That took a Herculean effort and a significant dollar spend as well as getting the board to go along, given that we had just come off a difficult year," says Jim Quinn, vice president of sales and marketing. "It took extraordinary vision, tenacity and guts."

But for Fulchino, it was a no-brainer. "I said, 'Guys, we can be conservative, but you didn't bring me in to chip away. You want a great company? I can return it. We'll go for the gold.'"

Process Problems

That decision to go for the gold brought political challenges for Lacik. "It was very tough," he says. "The business [people] said, 'The last thing we need is [to be] investing in technology, especially when some of our processes are broken. This is too much, too fast. Back off!'" But as Lacik developed closer relationships with key business managers, a blend of process improvements and technology support began to work. "If you're just pushing buttons and pulling levers, it can be a disaster," he says. "But they really knew their business and were able to guide me."

For example, a sales force automation and order entry system from Siebel Systems Inc. was the primary turnaround tool in sales, but Quinn knew technology alone wasn't enough.

The 'Four I's' Of Success

The transformation at Aviall came together around the "four I's," says CIO Joe Lacik.

INTERNET: Aviall.com, a value-added customer- and supplier-facing Web site.

INFRASTRUCTURE: Includes storage-area network architecture in the data center; EMC Corp. Tier 5 fault-tolerant storage systems; complete redundancy.

IMPROVEMENT: Expert help on process improvement in conjunction with technology upgrades; ongoing functional-area teams continue to evaluate processes and plan further improvements.

INTEGRATION: Integrated best-of-breed applications with middleware from Sybase Inc.; XML for easy integration with customers' and suppliers' systems; equally important is the integration of people and processes with technology.

"Plenty of people put in Siebel and still fail," he says. He needed to make his sales force accountable. That required training and discipline in time and territory management as well as use of the new system — a strategy not all salespeople were eager to embrace. "A number of salespeople opted out," Quinn recalls.

Enforcing the new processes, which were unpopular with a lot of salespeople, was "a pretty gutsy call to make with the company going the wrong way on revenue," Lacik says. But Quinn wouldn't take no for an answer, and the processes changed. "It was a difficult year," Quinn says, "but they started to make commission checks again, and that made them believers."

Business Transformation

Meanwhile, an online purchasing system from BroadVision Inc. enabled the new Aviall.com site to offer 380,000 parts to the company's 17,000 customers, using 20,000 pricing matrices. Web sales as a percentage of total revenue have grown by about 60%, while costs per order have been cut from \$7 by phone to 39 cents via the Web.

In operations, upgrades to an inventory control and warehouse management system from Catalyst Manufac-

turing Services let Senior Vice President Charley Kienzle move \$200 million in inventory to a new warehouse over one weekend without missing a beat. Upgrades to the product allocation, inventory management and forecasting software from Xelus Inc. provided more collaborative forecasting.

For example, sales leaders can make educated guesses about inventory needs based on market conditions. Soon, major customers may have a view into the Aviall pipeline to help better manage their own inventories and improve Aviall's forecasting.

Integration of the various systems with CRM data brings it all together. For instance, information about the number of different aircraft a customer services helps salespeople target their pitches and suppliers forecast demand.

Customer Value

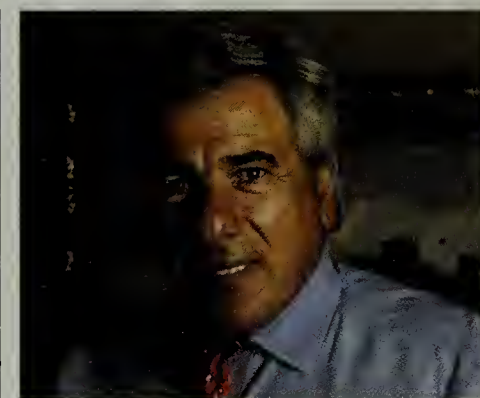
Aeromaritime Mediterranean Corp. in Chantilly, Va., is one customer that has embraced Aviall's technology. The \$50 million corporation consolidates and ships orders for helicopter overhaul service companies worldwide.

Group logistics director John Strickland goes to Aviall.com first thing each morning. Aviall's Web site has streamlined his ordering process from two hours to 20 minutes a day, he says, adding, "We see the price immediately and don't have to ask for a quote and figure it out. And for every line item, we can put a different delivery date."

Another benefit is the "instant availability of information," Strickland says. "We know when things shipped. We can double-check orders and see what's outstanding, go back and look at shipment dates, check current orders to see if we've got enough and when it's coming. We can even download invoices and see them ahead of time before the shipments arrive."

Aeromaritime's overseas facilities also have access, "so instead of calling and asking me to ask someone the status of an order, they can check it themselves," Strickland says. His department used to need seven people. Since Strickland started using Aviall.com, business has tripled and then doubled again, and he's handling it all with four people.

But many customers aren't that tied in yet, says Peter Arment, a principal at JSA Research Inc., an independent aerospace equity research company in Newport, R.I. "Currently the airline industry is in a large restructuring, so adoption rates are slow initially," he says. "But Aviall is building for the long term, and they have a large



"I said, 'Guys, we can be conservative, but you didn't bring me in to chip away. You want a great company? I can return it. We'll go for the gold.'"

PAUL FULCHINO, CEO, Aviall

customer base, so the return will come as these services are adopted by the customer base."

Aviall has already seen lots of benefits. Since 2000, it has invested \$30 million to \$40 million in IT, and revenue has grown \$431 million, from \$372 million in 1999 to \$803 million in 2002, while net after-tax profit has risen from \$5 million in 1999 to \$27 million in 2002. Moreover, says Fulchino, Aviall's value-added service has attracted larger suppliers who used to handle their own distribution.

The number of monthly North American sales calls has tripled with no increase in the sales force, and even though the aviation market is down, general aviation parts sales have grown by double digits, Kienzle says.

In the process, Aviall has become a much more integrated business. "I'm a marketing guy leading an IT project [Aviall.com] working with IT, ops, sales, and you often can't tell where one begins and the other ends," says Dar Hackbarth, manager of e-business and marketing.

And the story continues. Fulchino plans to continue to invest \$6 million to \$7 million in technology yearly to make Aviall indispensable to its customers and suppliers. "We hoped to double our size in five years, and we did it in two and a half," he says. "Now we hope to double again in another five years. We'll see." ▀

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@yahoo.com.

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COMPUTERWORLD



JOSEF GAST

Divide the changes into manageable chunks, enlist users as allies, and deliver more than you promised. **By Robert L. Scheier**

TODAY'S weak economy makes upgrading major business systems harder than ever. Management has little patience for IT projects that go over budget or don't deliver the promised savings. Users doing their own jobs plus the work of two or three laid-off colleagues have little interest in cooperating with an upgrade effort, especially if the new system might eliminate their jobs next.

But the economic crunch that is making software upgrades so painful right now is also increasing the pressure to do those upgrades quickly and well. Companies desperate to squeeze out costs and improve profits are upgrading to newer, Web-based versions of ERP systems that allow them to fine-tune pricing and reduce costly inventory [Quick-Link 34987]. Other companies are looking to migrate from proprietary systems to less-expensive, open-source software such as Linux.

If you manage an upgrade well in these trying times, you can earn points with your employer, improve your marketable skills and at least make life easier for yourself and those around you. The keys, say veterans of the process, are to dump the arrogance regarding users, divide the painful changes into manageable chunks, and underpromise and overdeliver.

"I promise absolutely as little as I can get away with," says Damien Bean, vice president of corporate systems at Hilton Hotels Corp. in Beverly Hills, Calif., and one of *Computerworld's* Premier 100 IT Leaders for 2003. "Don't overpromise — that's the death of every big upgrade."

Smaller, incremental upgrades are more likely to meet everyone's expectations than "big-bang projects," says Bean. And because they involve less

change at any given time, incremental upgrades generate less resistance from skeptical users or managers.

No More Arrogance

One of the biggest obstacles to successful upgrades is users' negative experiences with previous upgrades, says Catherine Walters, an independent project management consultant in Worcester, Mass., who has managed many upgrades for an East Coast financial services firm. She says users remember upgrades when key systems were unavailable for days, causing them extra work. When they hear of a new upgrade, she says, their response is, "[IT is] going to do it to us again."

Walters advises that you acknowledge past failures but stress how much the upgrade team has learned since then and point out that users can play a positive role in creating a successful outcome this time.

"They have a contribution to make if they can get their hands dirty and be involved in testing and helping to write the user manuals," she says. Talking down to users or keeping technical details from them is counterproductive, she adds, because many users are far more technologically savvy than they used to be. If some users need hand-holding, give it to them, if you can afford it.

"Just sitting and talking with somebody and helping them" with common chores, such as setting up a new application so it's linked to a familiar printer, is all that some users need to feel more comfortable, says Connie Eaton, a senior business analyst at GM Nameplate, a 1,000-person manufacturing firm in Seattle.

It's vital to have users who know the business on the upgrade team, says David Richards, CIO at Pacific Steel

UPGRADE MANAGEMENT

SURVIVING SOFTWARE UPGRADES

and Recycling in Great Falls, Mont. "They're your most knowledgeable people. You need to get their knowledge and to get their buy-in" so they can generate support for the upgrade among other users, he says.

Rich Bursek, senior vice president of online strategy at VirtualBank Mortgage, a subsidiary of Lydian Trust Co. in Palm Beach Gardens, Fla., is finishing the installation of a new mortgage-processing system, perhaps the single most critical application for the online mortgage lender. Many of the business staffers who process mortgages were included in the selection process. "We really wanted to make it their choice . . . instead of them thinking they were getting pressured by the IT department," Bursek explains.

Eaton says that when she asks a user to help evaluate potential software purchases, she typically goes with the user's choice unless there is a good reason not to do so.

Winning over users also requires scheduling the planning, development, rollout and training to avoid crunch work times for users and managers. Bursek scheduled any upgrade-related meetings, such as progress reports or appointments with vendors that might involve users, within the first two weeks of the month, avoiding the end-of-the-month period when most mortgages close. That's important, because the users don't earn their commissions until the mortgages close.

At Hilton, "we have to be cognizant of the fact that [users are] continuing to operate their business in a very, very tough time for the travel industry," says Bean. "They don't have a lot of extra hands available at the moment." Realizing that system training will always take a back seat to day-to-day operations, Richards advises budgeting for some after-hours and weekend training.

No Forced Marches

One major reason upgrades fail is that IT project managers try to change both software and business processes at the same time, says Bean. He reduces the risk of failure and culture shock by upgrading applications first and then phasing in new features that force changes in how users do their jobs.

At Lydian, Bursek has even customized some portions of the new processing application so it "mocks" some of the existing workflows to which users are accustomed, and he has delayed implementation of a feature that would suggest to mortgage processors which loan program is best

In successfully persuading a skeptical user to help during a system upgrade several years ago, it wasn't "so much what we said as that we listened," says Catherine Walters, an independent project management consultant in Worcester, Mass.

The financial services company she worked for needed to make state-ordered changes to a system that rated the risks for various types of insurance. One manager in a branch office "was deeply concerned" about whether the changes would both

comply with the new regulations and allow him to keep offering policies at a competitive rate. "If we didn't do this right, this could potentially cost him business," says Walters.

Rather than deny that risk, she says, "I picked that theme up, that we have this business that is very profitable and it's our job [in IT] to protect it." She made the branch office manager part of the project team, tapping his knowledge of insurance regulations and of how the legislature

would structure the final rating requirements. "As soon as we started listening to him, he responded beautifully," she remembers, even sending staff from his office to help with the upgrade.

"I can't stress enough how important it is to listen, and to treat people with the kind of respect you would want," she says. "Giving them a T-shirt or a coffee mug doesn't do it. Give them a chance to roll up their sleeves and get their hands dirty."

— Robert L. Scheier

Winning Over the Skeptics

for a customer. "If the system were to make a mistake, or we made a mistake in the setup, and it was noticed right away, it would have given bad marks to the rollout," he says.

One of Bursek's best moves in winning the hearts and minds of users, he says, was hiring a help desk specialist whose job it is to understand the new system "inside and out." When the application is rolled out, the entire eight-person upgrade team will stay with the mortgage processors for 30 days to answer any questions and prevent business interruptions. Bursek's goal: to avoid the perception "that the IT team walked away from the implementation."

TIPS

Successful Upgrades

■ **Draw pictures of workflows** to encourage users to share their knowledge of how new systems should work, and to show why their involvement in the upgrade is important.

■ **Have users – not developers – schedule training times** to avoid peak work periods. Write training manuals that include the information they need.

■ **Have a stick handy in the form of executive support** to press reluctant users to go along with the upgrade.

■ **Have a carrot handy in the form of examples** of how the upgrade will eliminate drudgery or give users new skills.

■ **Prove that the new system will deliver** the promised response and throughput by using automated testing tools.

After the 30 days, the team will focus on rolling out the application to another business unit. Although team members will still be available to make enhancements to the application, most of the day-to-day support will be handled by the dedicated help desk specialist.

For IT managers, losing the arrogant attitude doesn't mean you can't and shouldn't be forceful when needed. At Pacific Steel, Richards interrupted a training session to remind complaining users why the upgrade was vital. The new system, he told them, would speed the delivery of information such as the profitability of various products.

"In order to get that new information, sometimes you have to do things a little different," he told them. "After that," he says, "they seemed to accept it a little better." Walters recommends developing "advocates among senior management, hopefully ahead of time, who can run interference if necessary" and overcome users' resistance.

Even in tough times, teamwork and humility go a long way. "You always surround yourself with very smart people," says Bursek. "You never assume you've got the right answer, and you work off your worst-case scenario. Constantly ask yourself, 'Do I have it all covered? Do I have it all covered? Do I have it all covered?'"

And when talking to users or others whose cooperation is needed, "even when you're almost certain you know the answer, don't assume — just ask the question anyway," says Bean. "Just the sheer action of asking engenders cooperation." ▀

Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.

You always surround yourself with very smart people. You never assume you've got the right answer, and you work off your worst-case scenario. Constantly ask yourself, 'Do I have it all covered?'

RICH BURSEK, SENIOR VICE PRESIDENT OF ONLINE STRATEGY, VIRTUALBANK MORTGAGE

Speedy Recoveries

Quick turnaround on IT help desk calls boosts employee satisfaction at Baptist Health Care. *By Jean Consilvio*

BAPTIST HOSPITAL in Pensacola, Fla., used to be no different from a lot of other hospitals. Top executives didn't share information or include the staff in decision-making, and that fostered a perception of secrecy among workers. Employee turnover was high — 33% in 1996 alone — and there were no tools or processes to measure employee satisfaction.

That was seven years ago. Since then, parent company Baptist Health Care Corp. has done an about-face: Today, the employees make the decisions and fix the problems. The result is patient care that consistently earns top ratings, a nurse vacancy rate of 2% and the lowest annual employee turnover rate ever, at 11.4%.

Baptist executives say that every initiative to improve the work environment can be traced back to IT, whose mandate now is to measure everything and respond immediately to all service requests.

CIO Dave Garrett and 49 IT workers

spread among four technical groups support about 3,000 PCs and 2,000 printers and other devices. These are scattered across Baptist Health Care's five acute care facilities in Florida and Alabama, a behavioral health system, two home health agencies, one long-term care facility and two ambulatory surgery centers.

The emphasis is on executing the basics with excellence. "There's nothing rocket science here," says Garrett. "We're consolidating services and our help desk, and we feel good about doing it while improving customer satisfaction."

IT gets 800 to 1,200 help desk calls per month. Any hardware- or software-related call is fair game. That includes everything from desktop software to payroll, laboratory, radiology and hospital information systems and networks, plus any of the 100 servers running more than 120 applications. The help desk is Level 2, which means that the majority of calls are escalated and assigned to someone who is paged and then must call the customer back.

"We're not Level 3," which would mean the help desk could resolve problems immediately on the phone, Garrett says. "But I hope to get there someday. In our environment, we would need more people, and then more people with different skills."

In the meantime, he's finding ways to measure and improve customer satisfaction. For example, when the help desk closes a user's service request ticket, the user is notified via e-mail that the service call has been closed — but the call isn't officially closed for reporting statistics until the user says so. When the user says the call is finished, within a few minutes he's automatically sent an online survey with four questions. The answers are rated on a scale of 1 to 5.

"It moves really fast," says Garrett. "If we get a 3 or less in any question, it automatically e-mails the leader or director of that area here in IS, and it's time for 'service recovery.' We call the customer and apologize for not meeting their expectations and ask what we can do better next time. We usually do get some good feedback."

Service recovery can mean more back-and-forth communication between IT and the user to determine what's causing a recurring problem. In other cases, IT has been known to send a user something from the gift shop — in addition to fixing a problem

AT A GLANCE

Baptist Health Care

- About 50% of all employees are nurses. There are 5,600 employees at Baptist Health Care and 1,700 at Baptist Hospital.
- 22,000 admissions per year
- Not-for-profit - operates on a 2% margin
- 2003 IT budget of about \$3.5 million
- 49 IT employees
- Spends an estimated \$1 million per year to maintain compliance with the Health Insurance Portability and Accountability Act of 1996
- One of *Fortune's* 100 Best Companies to Work For in 2002 and 2003

that may have taken a little extra time.

To keep people interested in completing the surveys, IT each month randomly draws a survey number and rewards the winner with a \$25 gift certificate to Sam's Club or Wal-Mart. The feedback program began in December, and the satisfaction rating today is 4.868.

The application that creates the help desk service request tickets was developed in-house and is Lotus Notes-

based. All tickets are viewable by anyone who has access to Notes, which is in line with Baptist's no-secrets culture.

Both Garrett and Bob Murphy, Baptist Hospital's chief operating officer, say their employees are hard-working people who are dedicated to maintaining the quality of service at Baptist. But in order to do that, they need to know where they stand at all times.

"What impresses me about what IS has done is that they're measuring," says Murphy. "They want to know what their customers are saying, and when the customer is not satisfied, they respond and try to make it better. That's the key — we're never going to be perfect. We just have to, when we drop the ball, respond appropriately and do what we call here 'service recovery.' "



Dave Garrett, CIO at Baptist Health Care Corp.

Getting Better and Better

Baptist Health Care's Bright Ideas program rewards employees for suggestions. For IT, the goal this year is to save \$500,000 and to receive an average of 2.5 ideas from each IT worker. Already, workers have sent in 1.8 each on average, saving Baptist Hospital \$380,000. Here's a sampling of bright ideas from IT that have seen the light of day:

■ **Install flat-panel monitors, which cost more to purchase but in the long run cost less.** Flat panels have a 30-month longer life cycle and carry a

monthly energy cost of 94 cents vs. \$8.50 for a conventional unit.

■ **Have someone in IT get a forklift license.** Not having to wait for PCs and other equipment to be delivered has saved an estimated 80 hours per year.

■ **Lose the paper surveys.** When the user closes the help desk service ticket, it sends an e-mail to the user saying there's a customer satisfaction survey waiting for him online.

— Jean Consilvio

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NEWSMAKER



Mandalay Resort Group in March hired its first-ever CIO, **TRACY AUSTIN**, to ensure the value and importance of IT's role in its Las Vegas-based casino and hotel busi-

ness. Austin spent 17 years at Harrah's Entertainment Inc. and the past two years as a consultant to senior executives. Her staff of about 130 handles IT efforts at 16 Mandalay properties in four states. She spoke with *Computerworld's* Jean Consilvio about what lies ahead.

What's on your plate now? The challenge I face is twofold: Making sure that carving out the CIO role here at Mandalay adds value to the business while at the same time looking forward and further developing IT strategies.

Are you tuned into the business strategy? I've been here nine weeks and I'm getting tuned in. I'm part of ongoing strategy discussion with the corporate and property marketing groups, and I feel very fortunate just to have been pulled into that. A lot of times CIOs have to ask to be included, and Mandalay has been very warm and receptive in terms of pulling me right in.

Do you have plans to reorganize the IT staff? Because I had been doing some external consulting work with these folks, one of the things I did my first week was reorganize the corporate IT group. I was trying to add in [management] talent to support, for example, infrastructure network and operations and to be able to more quickly meet the business demand.

Have you set personal goals? I would be happy in the next year if what people said about the way we're running this IT department is that there's no smoke and mirrors. . . . Oftentimes people think that IT is different, and I want people to see it as, "We can run it just like any other arm of the business."

Is it hard stepping into projects in process? It's very different for me in terms of coming from a background where I built things from the ground up. But [my consulting experience] is helping me get my arms around that. ▀

JOHN BERRY

Getting Your Project Priorities Right

FREEDOM OF CHOICE can be as paralyzing as it is liberating. Decisions are suddenly undermined and muddled by uncertainty in the face of a seemingly limitless array of possibilities — 3,000 colleges, hundreds of cars, 20 different portable CD players, six pages of menu items to wade through. Make your choice now and stop dithering!

Many IT organizations wrestle with the same kind of paralysis because they don't have sound decision-

making frameworks to help them prioritize technology investments. At the same time, they face a proliferation of new technologies from which to choose and, frequently, a clamor from excited business units pleading for competing projects that they believe will solve different pressing business problems. The IT organization sits in the middle of this turbulence, attempting to balance external supply with internal demand. Executives need to concern themselves with only one question: Is the proposed project supporting business goals?

So many requests and so little funding suggest that sound project prioritization is crucial to economic value creation. The most effective prioritization scheme is the one that best supports alignment between a business strategy and IT. But project prioritization in and of itself doesn't ensure this. For example, placing a \$1 million cost cap on any one project to ensure that five projects can receive funding within a \$5 million total budget is certainly one way to prioritize, but it's not necessarily effective. It's a response to internal politics, not business strategy.



JOHN BERRY is an IT management consultant and analyst in Bend, Ore. He's currently writing a book about the measurement of intangible assets. Contact him at vision@according2jb.com.

The following techniques are proven frameworks through which specific investment proposals can be filtered and prioritized — and all reinforce alignment between IT and the business.

Hard economic forecast: Assess projects along hard-number returns only, using ROI, net present value or another preferred method of calculating returns. Don't include intangible, hard-to-quantify benefits, even when the project

champion insists that strategic benefits exist beyond what the numbers say. Then, map the calculations from the project list against the company's financial goals and see which project comes out on top. If cost containment is the company's mandate, a project with quick payback might jump into the lead.

This is a very strict, narrowly focused approach to investment decision-making, but if the numbers are accurate and adjusted for risk, "hard ROI" is perfectly aligned with financial goals.

Hard and soft economic forecast: This is the same as above, but it requires executives to make qualitative judg-

ments about harder-to-measure effects of an investment, scoring their importance and including this in the outcome. If the financial goal is revenue enhancement, a customer-oriented project that came out as No. 2 under a hard-number forecast might jump to No. 1.

The balanced scorecard: If you aren't familiar with Kaplan and Norton's bible, *The Balanced Scorecard: Translating Strategy Into Action*, read it. It lays out a set of principles and analytic techniques for improving a company's performance by focusing on four general areas: financials, customers, learning and internal processes.

The causal relationship among the four perspectives from internal to financial is a very useful way to think about the order in which projects must be deployed to reach intended financial outcomes. Ironically, you don't even need to adopt the balanced scorecard companywide to take advantage of its powerful project-funding logic.

Core competencies: The idea here is to prioritize IT projects based on what the company already does well. Which assets, skills, capabilities and talents can you exploit through a particular IT investment? A company might have a loyal customer base because it has a great brand. If the financial goal is improved earnings, consider which proposed customer-oriented project you can leverage to meet it.

Despite the qualitative nature of some of the scoring within these frameworks, all support the alignment imperative, if deployed properly. Consider one or a mix of all in your prioritization practices. The choice is yours. ▀

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Software Developer - Research, analyze, design, and develop computer software programs which relate to processing and encoding texts in Asian languages such as Chinese, Japanese and Korean. Utilize statistical analysis, clustering methods, text technology, database indexing and multimedia networking. Work in a C/C++ and Unix environment. Must have Master's or equivalent in CS/Math/Engineering or related field. Must have 1 yr. exp. in job offered or in related statistical/textual info retrieval in academic, or industrial environ.. Such experience must include: 1) statistical clustering methods, 2) semantics indexing, 3) Multimedia databases and networking. Salary: \$82,000/yr Hrs: 8:00am-5:00pm., 40/wk. Please send 2 copies of resume to: Case # 200201218, Labor Exchange Office, 19 Staniford St., 1st Fl, Boston, MA 02114.

Electronic Content Developer

Lead the design & development of the Intranet, iBridge portal, WebSphere portal, and CMS. Develop portlets w/ JSP, Servlets, JBeans, & XML using WebSphere API. Develop and publish content via CMS. Develop VB apps for survey mgmt conn. to Lotus Notes. Administer Intranet using Unix/CGI Script. Analyze and document business case process impl. Req: BS in CIS & abil. to use Java, JSP, Servlets, ASP, VB, Access, CGI/PERL, XML, XSL, R-Rose, UML, Flash, and Host on Demand. Able to do business analyst, system design, & tech. writing documentation. 40hr/wk. 9-6. Resume to: Zeron Turlington, Manager of eContent Services, The Home Depot, 2455 Paces Ferry Rd, N.W. (C-17), Atlanta, GA, 30339.

Systems Advisor. Define, plan, organize and provide project leadership for the development and implementation of worldwide regulatory clearance systems. Requirements: Bachelor's degree* in computer science, math, engineering, business or related field plus 7 years of experience in defining system requirements and/or project leadership in the development of user systems. Experience with customs clearance systems, data extraction using SQL, and RDBMS also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Greg Dison, Federal Express Corporation, 3650 Hacks Cross Road, Memphis, TN 38125. EOE M/F/D/V.

Research Associate II

To assist principal investigators in designing and implementing sys. for the acquisition, storage and retrieval of environmental data, developing software for data processing and operations for the US ARGO and Global Oceanographic Observing Systems. Req. B.S. in mathematics, physics, computer science, environmental science or related field, fluency in client-server applications programming plus 4 yrs exp. in commercial database mgt. systems. 40hrs/wk. Send cover letter & resume to Dr. Joseph M. Prospero, CIMAS, 4600 Rickenbacker Cswy., Miami, FL 33149. Ref. Code: ARGO-II.

Technical Support Specialist. 8a-5p. 40 hrs/wk. Analyze project, review, test prgm for compatibility; troubleshoot & provide tech'l support/updates using object oriented prgmg, Java, TCP/IP & Win NT; repair & maintain comps. Educational req: Bach or equiv in Comp. Sci/Engg. Info Technology, Electrical, Electronics or related Engg. Resume: S3 Group, Inc., 7001 Peachtree Indus. Blvd, Ste 446, Norcross, GA 30092.

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Multiple positions available in a software consulting development company:

Computer Programmers - Develop & write computer programs in a variety of programming languages including C, C++, ORACLE, Java, HTML, Java Script, Jdeveloper, EAI, eGate, SeeBeyond and web methods.

Consultants - Analyze, develop, design, test & support EAI based applications using Exchange, Java, UNIX, IIS servers, eGate, or SeeBeyond.

BS or equiv. in Comp. Sci. or any Engg., statistics, or related fields plus relevant exp. Send resume to HR, SysZen Technologies, Inc., 646 Highway 18, Ste. 218, East Brunswick, NJ 08816.

Seeking qualified applicants for the following positions in Orlando, FL:
Senior Business Application Analyst. Formulate/define systems' scope and objectives based on user/customer needs and a good understanding of applicable business systems and industry requirements. Requirements: Bachelor's degree* in computer science, business, math, engineering or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with MS Project and either C++, Java, JSP or object-oriented programming also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

IT SPECIALIST to install, configure, and support network systems; develop, maintain and administer automated computer systems including PowerFacts, EDCONN, NSLDS, ELM, and mainframe; coordinate the automation, updating, and maintenance of current and future technological processes; responsible for the coordination and production of regular financial reports in an accurate and timely manner. Require: Bachelor degree in Computer Science/Information Systems. Competitive salary and benefits. Mail resume to: Director, Human Resources, Alabama A&M University, P.O. Box 305, Normal, AL 35762.

Sr. Software Engineer - As a member of the software development team: Design & develop call control software. Analyze software requirements & functional specifications. Design, code & test critical Call Control functionality: translations, CLASS 5/4 Services, the AIN basic Call Model, messaging & associated protocols. Participate in design & code reviews. Will maintain existing software systems & test/integrate telecommunications products. B.S. in Comp. Sci/Engg, Electrical/Electronics Eng'g or equiv.+3 yrs. exp. in job offered or software development. Must be proficient in C & UNIX programming & have an in-depth understanding of Data Switching Systems as well as AIN Generic Requirements for Call Control. Must have knowledge of general telecommunication procedures. 40 hours/week; Salary: \$98,400/yr. Send two copies of resume to: Case #200201689, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

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Sr. Software (Test) Engineer - As member of software testing team, test & develop test automation software. Participate in design & code reviews. Write test plans according to system requirements. Maintain existing test plans & automated test scripts. Test telecommunications products. Support potential customers during lab trials. BS in Comp. Sci./ Engg, Electronics/Electrical Eng'g or equiv + must have 3 yrs exp. in job offered or w/ software testing for the telecommunications industry, including detailed knowledge of telecommunication protocols, general telecommunications procedures & TCL programming. 40 hours/week; Salary: \$100,000/yr. Send two copies of resume to: Case #200201690, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

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Sr. Software Engineer - As member of software development team, design & develop software & sustain company's cutting-edge telephony devices. Will develop & enhance serviceability tools & participate in design and code reviews. Will test & integrate telecommunications products & provide critical bug fixes for customers. In addition, will provide customer software enhancements & use programming/analytical skills in order to provide services for debugging. M.S. Comp. Engg, Comp. Sci, E.E. or equivalent + 2 yrs exp. in job offered or software development. Exp. may be gained prior to M.S. degree. In the alternative, employer will accept candidates w/BS & 5 yrs. of progressively responsible post-graduate exp. Must have knowledge in at least 1 of the following telecom protocols: ISDN or SS7 Call processing, ATM, or TCP/IP as well as strong coding skills in C. 40 hours/week; Salary: \$100,000/yr. Send two copies of resume to: Case #200201645, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

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Software Engineer - Develop, integrate, maintain & test complex communication protocols including but not limited to: Sigtran, SS7/CCS7 & ISDN. Participate in design & code reviews of new software and modifications to existing software. Develop, maintain & test telecom applications & system software responsible for configuring & controlling the system, internal communication between software entities, fault tolerant and redundant operation of software. Analyze and document computerized telecommunication system software requirements, functional specifications, architectural specifications, & design specifications. B.S. in Comp. Engg, Comp. Sci, E.E., or equiv.+ 2 yrs exp. in job offered or telecom software development. Must have proficiency in C programming as well as knowledge of telecommunication protocols. 40 hours/week; Salary: \$84,000/yr. Send two copies of resume to: Case #200201686, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

Computer Product Manager: Manage, plan & direct a group of computer engineers developing new products. Also designing and developing vIDE for a middleware product, Virtuosi, and online financial analysis web application using C, C++, Java, JSP, Perl, SOL, Oracle, XML, HTML, ASP, JBuilder, VB, Rational Rose, WinCVS, ATG's, Dynamo and JESS. Requires: Masters in Computer Science and 2 years experience in software development. Must have knowledge of C, C++, Java, JSP, Perl, SOL, Oracle, XML, HTML and Visual Basic. 40hrs/wk (8:00 a.m. to 5:00 p.m.); \$99,413.00/yr. Send two resumes/responses to: Case Number 200201473, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Seeking Associate Vice President for MIS and Decision Support

Florida Community College, one of the nation's leading technology environments in higher education, is seeking an **Associate Vice President for MIS & Decision Support** to join its innovative and highly successful technology leadership team. Reporting directly to the VP, Technology and CIO, the successful candidate will be responsible for the college's Enterprise Resource Planning (ERP) System, Telecommunication and Networks and its highly advanced computing environment.

Minimum qualifications include a Bachelor's degree and five years of IT management experience.

Preferred qualifications include a Master's degree and a demonstrable record of distinctive success in managing IT in a sophisticated technical environment.

Salary is competitive and negotiable dependent upon qualifications and experience.

how to apply: Interested candidates must submit a Florida Community College at Jacksonville application. An Administrative/Faculty/Professional application can be downloaded or completed online from our Web site at www.FCCJ.edu/HumanResources; obtained at the Human Resources Department at 501 W. State St., Jacksonville, FL 32202; or by calling (904) 632-3210.

Florida Community College does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services, is on equal access/equal opportunity college, and maintains a smoke-free/drug-free environment.

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SYSTEMS ENGINEER

Will develop, create and modify computer applications software for clients by analyzing user needs and creating, developing and refining software solutions. Will design or customize software for client use with the aim of optimizing all affected areas of operational efficiency. Knowledge of HTML, DHTML, Javascript and JSP required. Previous project management experience and knowledge of the Stellant product suite preferred. Bachelor's degree or its equivalent in computer technology or related field is required. Position fulltime, M-F, \$50,000/year. Interested parties may submit their resumes to Transcend Software, Inc. Attn: Susan Blaskovich, 5440 Corporate Park Drive, Davenport, IA 52807.

PROGRAMMER/ANALYST

Design customer software applications for clients by analyzing client requirements, designing functional specifications, developing and documenting code, performing initial testing with feedback to Q.A., coordinating implementation with client and providing all necessary documentation throughout all stages of the project and escalated support after implementation. Requires working knowledge of VisualBasic, XML, Javascript, PDFLIB, .net, ASP, and JSP. Bachelor's degree or its equivalent in computer technology or a related field is required. Position is fulltime, M-F, \$55,000/year. Interested parties may submit resume to Transcend Software, Inc. Attn: Susan Blaskovich, 5440 Corporate Park Drive, Davenport, IA 52807.

eTransX, Inc. provides cost-effective information solutions for issues involving e-Business and e-Commerce. We are looking for the following position. **Software Engineers:** Design, develop, analyze, and recommend software requirements for messaging, system integration and E-commerce database applications. Expertise in object-oriented programming using Java and C++. Expertise in XML, RDBMS Oracle, MySQL, SQL Server, DB2, application servers, wireless protocols and LDAP required. Experience with MS Active Directory, BlackBerry SDK, ClearCase and current Web Technologies in Windows, Unix, and Linux environments. Need Master's degree in Computer Science or Engineering and 3 years of experience. Send resume to: Human Resources, eTransX, Inc., 8323 Southwest Freeway, Ste 590, Houston, TX 77074. E-mail: info@etransx.com

Database Administrator. Manage and maintain Sybase, SOL and Informix databases and ensure continuity of development activities. Install new versions, products and components to upgrade databases. Streamline default parameters in existing databases. Tune and scope OS and database parameter settings; update periodically. Daily troubleshooting. Administer databases (create log-ins and security measures, assign roles and privileges). Monitor OA and development databases. Establish back-up and recovery procedures. Provide support for synchronization schemas for Dynamo 5.0. Supervise physical design of databases. Database development duties include data migration, views, stored procedures, schema development, internationalization, inter-database consistency, configuration, tuning, and troubleshooting. Database systems include Sybase, MS SOL, and Informix. Qualify with MS in Comp. Sci., EE or related area plus 2 yrs exp in position w/ database maintenance and development duties (including data migration, views, stored procedures, schema development, internationalization, inter-database consistency, configuration, tuning, and troubleshooting) in Sybase, MS SOL, and Informix. Must have unrestricted right to work in US. M-F, 8:30am-5:30pm, 40 hrs/wk. Salary: \$85,000/yr. An EOE. Send 2 copies of resume to Case No. 200116428, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

OpTech, Inc. has immediate, full-time opportunities for:

Systems Analyst to analyze user requirements, procedures and problems to automate processing or to improve existing computer system/network; review computer system/network capabilities; develop new system/network to improve production; provide problem analysis, isolation, resolution and traffic management; use a variety of tools including Concord/Cisco Works, ATM Switches & Active View. Bachelor's degree or foreign edu. equiv. of same and 1yr exp. required.

For some positions, we also accept the degree equivalent in edu and exp. Travel and/or relocation required. Send confidential resume, salary requirements to: OpTech, Inc. Attn: HR 645 Griswold, Ste. 2146 Detroit, MI 48226.

IT/Consulting Company req.: Prog./Analyst w/Bachelors Deg. & 2 yrs. exp. or its equivalent. Degree req. Comp. Science, Science, Engg, Math, MIS. Equivalent can be based on Education and Exp. evaluation, w/skill sets that include:

Java, J2EE, EJB, JSP, Servlets, JavaScript, Java Beans, HTML, Corba, Ariba, TIBCO, XML, ASP, JFC, Swing Controls, Perl/CGI, Web Logic, WebSphere, Oracle Apps. Server, VC++, MFC, COM/DCOM, SQL, VB, VBScript, Microsoft.NET, ActiveX, Powerbuilder, C, C++, UNIX/LINUX, HP-UX, Windows 2000, NT, Sun Solaris, AIX, DB2, Oracle, PL/SQL, Oracle Forms and Reports, Developer 2000, Designer 2000, SQLServer, Sybase, Informix, SAP, PeopleSoft, JD Edwards, Siebel, BASIS, ABAP/4, EDI/ALE, APO, BW, SQR, MVS, VAX, VMS, JCL, COBOL, T-SQL, AS400, Informatica, Business Objects, Microstrategy, Crystal Reports, SAS, Rational Tools, Testing, Win Runner, Load Runner, Mercury Tools, Silk, MS-Office Suite, Lotus Notes, CISCO Routers, LAN, WAN, DecALPHA, Documentum, Interwoven.

Travel & Relocation req. to unanticipated client sites throughout the U.S. as assigned. Send resume to Attn: Recruiter: Nutech Systems, Inc., 1638 Omara Lane, Smyrna, GA 30082.

Development Manager. Responsible for managing all company software development projects to ensure that projects are properly completed on time and under budget. Supervise software development teams in the development of intricate database driven applications. Oversee and lead the Development Team staff. Interact with clients and supervise coding and development functions. Demonstrated ability developing intricate database driven applications using tools such as ColdFusion, HTML, Dynamic HTML, JavaScript, Java, Java Server Pages, Active Server Pages, IIS 5, Windows. Demonstrated ability developing applications using tools such as SOL Server, MS Access, Oracle, COM, XML, Flash, Crystal Reports, Cascading Style Sheets, ActiveX Components. \$110,340/yr. 40 hr/wk. 9:00a.m. - 5:00p.m. Must have Bachelor of Science, Comp. Sci., Eng. related field/equiv. and 3 years experience (or 3 years experience in related occupation as Consultant/Software Engineer). Send 2 resumes: Case #200200517, Labor Exchange Office, 19 Staniford Street, 1st fl., Boston, MA 02114.

Computer Software Engineer needed for Jackson, Wyoming corporation to plan, develop, test and document computer programs. Requires one year of application and database development experience using VBA, Access and Excel in a Windows environment. Send resumes to Lynda Yazzolino, H.R. Dir., P.O. Box 1108, Jackson, WY 83001. Refer to Job Code: BDBC.

IMRA America is looking for Research Scientist in the field of opto-electronics, high-power laser & wave-guide technology. Qualified candidates must have Ph.D. with at least one-year experience in the optical area. Please send resume to employment@imra.com. EOE.

K&M Softech is looking for programmer/system system, software/project engineers or IT professionals. Both entry & experienced levels needed. Some positions require travel. Skills in C/++, VB, Oracle, SAP, SQL are plus. Please send resumes to Recruit@kmsotech.com. EOE.

NetSoft has openings for Programmer/system analysts. Software engineers or other IT professionals to design, develop, test, analyze, code, implement and maintain software and computer system to meet client's requirements; skills in COBOL II, CICS, MVS, JCL, VSAM & DB2, SAP, HTML, Java, PWB, IIS, JDBC, ASP, JavaScript, XML and Oracle 8.0 are preferred. Applicants must have BS/MS (or equivalent, 1-5 exp. in IT). Some job may require traveling (we pay expense). Competitive wage with full benefits. Please apply at Apply hr@nstc.net or jobs@nstc.net. No phone calls. EOE

Noetix Corp. seeks Comp. Systems Analysts for Bellevue office. DESC: Det. proj. specs.; Analyze user req's; Dir. the cust. & impl. of Oracle RDBMS & Oracle fin. & mfg. modules & apps. thru the util. of SQL, PL/SQL, & Des/Dev 2000 on UNIX & Win NT o/s. REOS: BS in Bus., Bus. Admin., MIS, Econ. or Fin. + 2 yrs. exp. dsgn. & impl. Oracle RDBMS & Oracle fin. & mfg. modules & apps. util. SOL, PL/SQL & Des/Dev 2000 on UNIX & Win NT o/s. Prem. sal. + bns & benes. Pls. reply to J. Hubbs, Job #TP-102, 2229 112th Ave. NE, #200, Bellevue, WA 98004.

Pronto Networks, Inc. is seeking a: Director/Chief Architect - Embedded Systems to lead the dev't of WLAN embedded systems. Requires MS + 5 yrs exp or Ph.D + 2 yrs exp in designing system architecture, efficient algorithms, and developing software products in networking/telecom. Pls send resume to Pronto Networks, 3527 Mt. Diablo Blvd, #404, Lafayette, CA 94549. No phone calls pls.

Software Solutions Group, Inc. A global provider of IT & prof'l business svcs. We are hiring for the following: Business Intelligence Integration Analysts Analyze client sys, assess requirements, design, develop & implement business intelligence applications in the areas of Inventory/Material mgmt, finan acctng, & data repositories. Create client/server & Web/intranet application for extraction, transformation & loading tools for daily manipulation & monitoring of data. Utilize tools such as C++, C#, ASP.NET, SeeBeyond, MS SQL Server 2000 & Oracle 9i. Min 3 yrs exp in related occupation. Fax res: (310) 337-0786 WEB LA514044

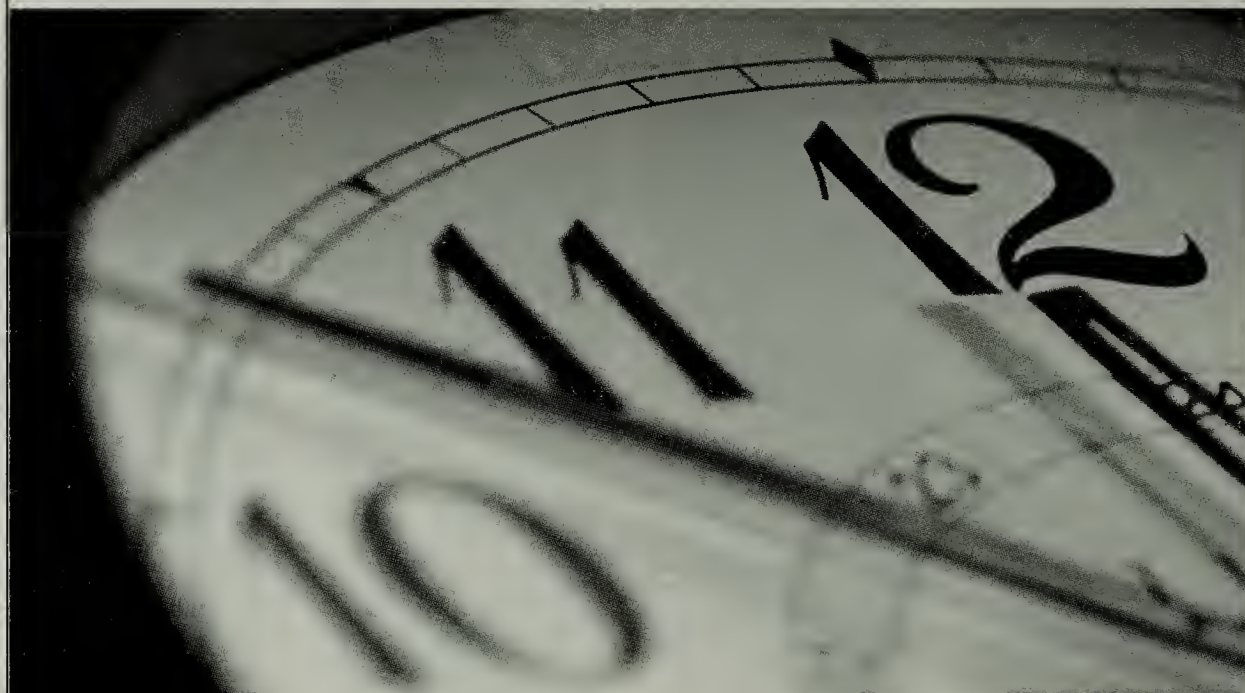
Prog/Analysts to analyze, design business/scientific apps using SAP R/3, ABAP, VB, Oracle, SOL Server on UNIX/Windows envr; develop tech design documents; determine reqs; perform monitoring, quality control; test/troubleshoot project appl code according to system objectives. Require: BS or foreign equiv. in CS/Sci./ Engg. (any branch) & 2 yrs of exp. in IT. Travel involved. High salaries. Respond to: HR, Smartsoft International, Inc., 7900 Steubenville Pike Suite 21, Imperial, PA 15126

Programmers, Jr. Programmers, Software Engineers: Analyze, design and develop apps. in (a) MQ Series, Shell Scripts, Java and related tech., Oracle & related tools, SQL Loader, CGI/Perl, Visual Basic, AppWorx and related technologies; (b) C/C++, Cobol, PB, Sybase, Java, Oracle, SOL Server, XML, Unix, MQ Series, Weblogic and related technologies. US Workers only. Consulting positions requiring travel. Prevailing wage/benefits. Send resume to HR, Datum America Ltd., 850 Boyce Rd., Suite 7, Bridgeville, PA 15017. EOE.

Software Engineers to lead teams to analyze, design, develop and implement s/w apps using Oracle Financials, MS Access, ERP Apps, Dev 2000, SOL, PL/SQL, XML, Pro*C, C/++, VB, ASP, HTML etc. on Sun Solaris, Windows, SCO UNIX OS; interact with clients for req. analysis/feasibility study; evaluate team, train end users. Require: MS or foreign equiv. in CS/Engg/Business & 3yrs of exp or BS or foreign equiv. in any of the above field & 5 yrs of relevant prog. exp. Travel involved. High Salary. Resumes to Fourth Technologies, 585 Tollgate Road Suite 1, Elgin, IL 60123.

PROGRAMMER/ANALYST wanted by software developer in Houston, TX. Must have degree & exp. Respond by resume only to: Mr. H. Morris, V/K - #10, Solid Software Solutions, LLC, 3300 S. Gessner, Ste. 201, Houston, TX 77063.

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Software Engineers, Program Managers, Database Administrators, Hardware/Electronic/Design Engineers, Technology or Tech Ops Specialists, Systems Engineers

San Francisco, CA

Technical Account Managers

Santa Monica, CA

Computer Systems Analysts (Consultant), Software Engineers (Systems)

Irvine, CA

Business Strategy Analysts

Redmond, WA

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Reno, Nevada

Product Managers

Atlanta, GA

Computer and Information Systems Managers, Software Engineers, Program Managers

Waltham, MA

Technology Product Specialists, Technology Specialists

Southfield, MI

Managing Consultants

Charlotte, NC

Support Engineers, Software Engineers, Developer Support Engineers, Applications Development Consultants, Escalation Engineers, Support Engineers, Support Professionals, Support Analysts, Technical Account Managers

Findlay, OH

Software Engineers, Program Managers

Fargo, ND

Product Managers, Software Engineers, Technical Trainers

Fort Lauderdale, FL

(Site Engineers) Operations Analysts

Washington D.C

Technology Specialists, Consultants, Business Analysts, Product Technology Specialists

Irving/Las Colinas/Dallas, TX

Support Engineers, Support Professionals, Developer Support Engineers, Solution Integration Engineers, Escalation Engineers, Application Development Consultants, Technical Leads, Partner Technical Leads, Consultants, Artists/Animators, Business Analyst, Customer Relationship Manager

Houston, TX

Business Productivity Advisor

Denver, CO

Software Engineers - FRX Software

All positions offer competitive salary and excellent benefits, including bonuses and stock options. E-mail your resume in ASCII text format to: jobs@microsoft.com (indicate Job Code A22dn-0503 in the subject header). Or mail your resume to: Microsoft Corporation, Attn: Recruiting Department, Job Code: A22dn-0503, One Microsoft Way, Redmond, WA 98052-8303. No phone calls please. We are an equal opportunity employer and support workforce diversity. Please visit our Web site for more information.

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The applicant shall have 7 + yrs in Business Modeling, Analysis, Design, Implementation and Configuration Management, CARNOT Workflow engine 1.2/2.0. Software using J2EE, XML, XSL Technologies with Oracle 8i/9i as backend and Oracle Internet File System as Fileserver on Windows and Linux Platforms. Lead role in the deployment and performance tuning of applications on Borland, JBoss 2.4.3 and Bluestone UBS Application servers is preferable. Knowledge into AS400 Systems, DB2, OS/400, DB2/400, CL/400, RPG/400, SQL/400, COBOL/400 on IBM AS/400 Platforms. certifications are a huge plus. 40hr/wk, competitive salary. Resumes should be sent to 226 Paul St.#204, Pittsburgh, PA-15211. WEB# 316650.

The applicant shall have 5+ years of experience in analysis, design, development, testing and maintenance of web applications using JAVA, EJB, Servlets, XML, JSP, HTML, Javascript, XSL, XSLT, Visual age, Secure, CRT, TOAD, WebSphere, DB2, MS Access, Informix, PVCS, ERwin, Unix Shell scripts, Sun Solaris, Windows NT, Mercury load runner 7.51, RAD View Webload, TogetherJ, JProbe, Design patterns, Frame work, Data Modeling and Rational Rose by using, iPlanet, LDAP, weblogic 5.1, Oracle 9i Automobile/financial industry. Certifications a huge plus. 40hr/wk, competitive salary. Resumes should be sent to 226 Paul St. #204, Pittsburgh, PA - 15211. WEB# 321325.

Performing software engineering design, test, analysis and implementation of various computer applications for Web based architecture wrt financial industry. Extensively use of JAVA with EXTRICITY on the web servers like WEBSPHERE and IPLANET. The databases like ORACLE 8i and DB2 should be used to retrieve data. Should work with operating systems like UNIX and WINDOWS NT etc. Must have min. 5 years of experience, 40 hr/wk, competitive salary. Resumes should be sent to 226 Paul St.#204, Pittsburgh, PA-15211. WEB# 326906.

First National Bank of Marin

DATA WAREHOUSE BUSINESS SYSTEMS ENGINEER

Design, administer, develop, implement, and manage Oracle data warehouse and data marts; participate in project design and Oracle OLAP database design decisions; refine and troubleshoot the design; solve database and application problems; develop and maintain database-driven applications; generate reports to support the needs of business; create and maintain appropriate documentation about the database and its data architecture; support interfaces and back-end integration with applications; and provide functional and technical supports to Oracle Financials Application.

Minimum requirements: Bachelor's degree or equivalent in computer science or related field plus four years software engineering or programming experience. Must have four years experience in business application systems design and development with two years in the banking/credit card industry. Prior experience must include using Microsoft technologies, VB 5.0/6.0, two years Oracle Financial Application DBA using Oracle Apps 11.0.3, ADI 7.X, Discoverer 3.1/4i, and one year FDR Row scripts.

Competitive salary. Hours: 9 am – 5 pm, M-F. Must have indefinite right to work in U.S. Send resume demonstrating minimum requirements to:

First National Bank of Marin
585 Pilot Road
Las Vegas, NV 89119
Fax: (702) 269-1260
Jobline: (702) 269-1122

www.FNBMarin.com

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SOFTWARE ENGINEER

Witness Systems, Inc., a Developer of Client/Server Monitoring Software seeks a qualified Software Engineer. Experience must include 2 years in the position offered or 2 years as a Software Engineering (Development or Design or Quality). Salary and benefits commensurate with experience. Send resume to: Sheri Mattison, Employment Manager, Witness Systems, Inc. 300 Colonial Center Parkway, Roswell, GA 30076.

Programmer Analysts

Prudent Systems, Inc. has openings for Programmer Analysts in NJ & elsewhere. Analyze, dsgn, dvlp, test & implmt s/ware & web based apps using VB, ASP, COM, MTS, IIS, XML, Oracle, SQL Server, MS Access, Win. Some positions req at least 4 yrs exp, others Bach in Comp Sci or Engg w/2 yrs exp. Must have legal auth to work in US. Excellent pay & benefits. Mail resume w/proof of work status to: jobs@prudentystems.com

COMPUTER

Vice President, Information Services

B.S. required and eight years experience in the job offered, or as a Programmer/Analyst, Software Engineer or similar occupation, with at least four of those years managing or directing customer technical support and information services required. Location: Irvine, CA. Employer: Best Software. Please e-mail resumes to hrhelpdesk@bestsoftware.com and reference VPIS in the subject line. EOE.

Blue Star Infotech is hiring all levels of Software Engineers, Prog/Analysts, Bus Analysts (technical), Business Dev. Heads, General & Operations Managers, Project Managers & Database Administrators. Send resumes to HR Manager, Blue Star Infotech, 550 Valley Way, Milpitas, CA 95035. May be placed at client sites nationwide.

Aries Solutions Intl Inc is hiring all levels of System Administrators. Send resumes to 635 Atherton Place, Hayward, CA 94541.

First National Bank of Marin

INTERNET DEVELOPMENT
BUSINESS SYSTEMS
ENGINEER

Performs technical systems analysis, software development, systems design and integration, construction, implementation, and maintenance activities in support of web-based application.

Minimum requirements: Bachelor's degree or equivalent in computer science or related field plus four years software engineering or programming experience. Must have four years experience in business application systems design and development with two years in the banking/credit card industry. Prior experience must include two years Microsoft technologies, VB 5.0/6.0, Active Server Pages, C++ or C Sharp, MS SQL Server, and web development.

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Senior Software Engineer - Westford, MA - Research and analyze data, recommend actions and generate specifications and design documents for the design and development of telecommunications protocol software for VPNs (Virtual Private Networking). Develop software for embedded systems using C programming language. Develop software to allow RIP (Routing Information Protocol) and OSPF (Open Shortest Path First) routing protocols to run over PPP (Point to Point Protocol) and MLPPP (Multilink PPP) lines. Develop Equal Cost Multi-path Routing. Track progress during software implementation, including analyzing and debugging problems and recommending solutions. Communicate project progress to management. Requires a Bachelor's degree in Computer Science, Computer Engineering, Electrical Engineering, or related field, and 3 years of experience in job offered or as a Software Engineer or related occupation. The 3 years of experience must involve design and development of telecommunications protocol software using embedded systems programming in C for VPN and related protocols such as PPP and MLPPP. 40 hrs/wk, 9:00 am - 5:00 pm. Salary \$90,100/year. Please send two (2) resumes to: Case# 200201770, Labor Exchange Office, 19 Staniford Street, 1st floor, Boston, MA 02114.

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PROGRAMMER/ANALYST to analyze, develop, test and maintain telemanagement application software for the hospitality industry using minimally Progress 4GL and RDBMS (V.8 & V.9), Smart Objects ADM1 & ADM2, Web Speed, Web Client, HTML, XML, JavaScript, Socket Programming, TCP/IP, RS232, Tomcat and Apache on Windows NT/2000, UNIX and AIX platforms. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 2 years of experience in the job offered; Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Dina Gallo Tarro, Systems Design & Development, Inc., 800-A, NW, 17th Avenue, Delray Beach, FL 33445; Attn: Job MS.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test and maintain web-based application software for the telecommunication industry using C, C++, Java, CORBA, Orbix, Sybase, DSG Toolkit, GDMO, CMIP, RogueWave Tools, h++, DB Tools h++, OOA and OOD on HP-UNIX, SUN Solaris and Windows platforms. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Software Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: Job KM.

Application Developer, responsible for developing interfaces between company's applications and other applications in Visual Basic. Interact with data processing, personnel representing the customer to determine specifications for the interface; designs the interface; write application code; install the code at the customer's site; test the interface to see if it functions properly; support the interface to fix any problems that may arise; document the interface. Required knowledge of: VB(5-6) including ActiveX components and Control, VBScript, Crystal and Data Report, SQL, MS Access 97/2000, MS SQL (6.5/7.1/2000), Windows NT/2000, HTML, XML, ASP, PCAnywhere, Terminal Services, Carbon Copy, Setup Factory, Sybase, Oracle. \$58,323 per year. 9:00AM to 5:00PM. 40hrs/wk BS in Computer Science or Computer related and 2 years exp. in job or 2 yrs. as software developer. Submit 2 copies of resume to: Case # 200116685, Labor Exchange Office, 19 Staniford St, 1st fl., Boston, MA 02114.

Database Administrator - Various locations throughout the U.S. Coordinate changes to computer databases, test and implement databases, apply knowledge of database management systems. May plan, coordinate and implement security measures to safeguard computer databases. Must have 18 months experience with Unix, Oracle 7.x, 8i, Developer 2000, DBA on Oracle. Must have a Bachelors Degree in Computer Science or Science Education and 18 months of computer professional-related experience. Position is 40 hours a week with a salary of \$57,700 a year. Must have proof of legal authority to work in U.S. Submit resume referencing job order #1101712 to Iowa Workforce Center, 800 7th St., SE, Cedar Rapids, Iowa 52406-0729. Employer paid advertisement.

Senior Software Engineer. Develop Windows-based version of Coreport, company's main product. Develop new technologies. Establish features and design new features. Develop and unit test new features. Create test plans with quality assurance team. Work with documentation group to ensure that new features are properly documented. Work with product support organization to resolve issues raised by customers. REQUIREMENTS: Master's degree in C.S., Engineering, or Math plus one and a half years experience in job offered or one and a half years experience as a Software Engineer. Must have knowledge of Windows NT, Windows 98, Visual Basic, and C/C++, MFC, and Post Object Server, Unix Shell Script, Java Script, ASP and OPEN INVENTOR, object oriented programming and multi-thread programming. Salary: \$85,562/year, M-F, 9-5. Submit two copies of resume to: Case Number 200116573, Labor Exchange Office, 19 Staniford St., 1st floor, Boston, MA 02114. Applicants must be workers eligible to accept employment in the US on a full time basis.

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Computon

on a monthly basis.

Analysts said new IT pricing approaches are needed to support the emerging utility-based computing capabilities being offered by HP and rivals such as IBM and Sun Microsystems Inc. Those two companies said they also have pricing updates in the works.

But the computon concept, which is due for initial testing within HP early next year, did not wow IT executives interviewed last week.

"It sounds too complicated to me," said Malcolm Fields, CIO at HON Industries Inc., a maker of office furniture and fireplaces in Muscatine, Iowa.

"The last thing that we need is another complicated licensing scheme," Fields said. "What we need is a quick and easy way to buy more computing power, and I need to be able to buy it in very small, inexpensive increments."

"I'm not sure I would like it

at all, and I don't think it would fly," said Tim Cronin, manager of IT at Nobel Biocare USA Inc., a Yorba Linda, Calif.-based maker of dental implants. "How in the world would you calculate all the variables?"

HP probably will be able to "come up with some matrix that will look very impressive," Cronin added. But he also questioned whether IT managers would be able to measure their computon usage and whether the plan would provide cost benefits to users.

Evolutionary Step

Some analysts were more positive about HP's plan, describing it as an evolutionary step in the development of utility-based computing.

"We will eventually get to a point where [IT vendors] charge for usage in real time," said Thornton May, a futurist in Biddeford, Maine, and a *Computerworld* columnist. "If you want electricity on a hot day, you pay more. If you want bandwidth on a busy pipe-



MICHAEL KREISER

"It sounds too complicated to me. The last thing we need is another complicated licensing scheme."

MALCOLM FIELDS, CIO,
HON INDUSTRIES

traffic day, you pay more."

Efforts by IT services vendors like HP, IBM and Sun to develop new methods of pricing for utility-based computing "are well placed," said Howard Rubin, executive vice president at Meta Group Inc. in Stamford, Conn.

But Rubin said the task won't be an easy one. "When true physics aren't involved, it's hard to come up with something meaningful, auditable and defensible for pricing," he noted.

In addition, Rubin said that he doesn't think rival vendors will work together to develop

a standard capacity-on-demand pricing metric.

A spokesman for IBM said it's now offering mainframe Linux hosting customers a "service unit" pricing approach. The pricing is based partly on the cost of the hardware being run by IBM, as well as its IT labor costs. IBM also factors in the average amount of hourly mainframe CPU capacity used over a 24-hour period and then tracks monthly utilization rates to come up with the service unit cost, the spokesman said.

In April, Sun introduced a pricing metric called the Sun

Power Unit, which sets prices based on factors such as CPU utilization and the storage capacity used by customers, said Jay Littlepage, vice president of IT operations at Sun and head of its utility-based computing program.

Littlepage said Sun is testing the new approach in four pilot projects, including one that's aimed at determining how to price applications shared among multiple users.

As part of its computon effort, HP is developing separate pricing mechanisms for the different types of computing services it offers, such as network bandwidth, application hosting and data center activities, Huberman said.

Service-level agreements will reward HP's biggest customers with preferential pricing — as long as they guarantee a certain level of usage, Huberman said. He added that HP is also weighing the idea of sharing the computon formula with customers so they can use it to calculate internal chargebacks for IT services. ▀

Continued from page 1

Visas

for such legislation.

Unless Congress acts, the H-1B cap is due to drop from 195,000, its limit for the past three years, to 65,000 in October, the start of the 2004 fiscal year. But the L-1 visa, which has no cap, has become as controversial as the H-1B.

The L-1 program was designed to let companies with subsidiaries abroad transfer to the U.S. executives or workers who have specialized skills.

But critics contend that U.S. companies are using foreign outsourcing firms, known as "body shops," to import IT workers with L-1 visas and replace higher-paid employees. Last year, the government issued 57,700 L-1 visas.

In his bill, U.S. Rep. John

Mica (R-Fla.) called the L-1 visa a "back door to cheap labor." The proposed legislation would require that employees be transferred from subsidiaries and not from third-party outsourcers.

But Mica's bill may face opposition from all sides.

Mike Emmons, an Orlando-based activist who said he lost his consulting job because of the L-1 visa, lobbied Mica heavily but said he's disappointed with the proposed fix.

Emmons said the legislation includes a large loophole that would let a U.S. company set up shop in another country, hire workers there and then move them to the U.S.

"This is a pretty minuscule bill," said Emmons.

But Vic Goel, a Greenbelt, Md.-based immigration attorney who represents high-tech companies, said the legislation

could prevent multinational firms from bringing in foreign IT workers to help clients in the U.S. For instance, Goel said, foreign workers who played a key role in developing a particular program may be needed to implement, service

and maintain the software.

"The idea is to find a solution that promotes business and closes the door on the abusers," said Goel. He added that such a solution could involve finding a way to differentiate "project-based [work] vs. simple provisioning of warm bodies to fill seats."

Holders of L-1 visas can work in the U.S. for up to seven years. H-1B visas let foreign workers take jobs in the U.S. for as long as six years.

There has been no move yet in Congress to raise the H-1B cap, but that issue will be discussed at some point by the House Judiciary Committee's Subcommittee on Immigration, Border Security and Claims, a committee spokesman said. Whether legislation will be introduced is "unclear at this time," he said.

The Information Technolo-

JUST THE FACTS

The L-1 Visa

There are currently more than 325,000 L-1 visa holders in the U.S., up from 203,255 in 1998.

The visa is intended to let companies transfer workers with specialized knowledge into the U.S.

Critics say the L-1 program is being abused and functions as a vehicle for displacing U.S. IT workers with cheap foreign labor.

gy Association of America in Arlington, Va., which pushed for a higher H-1B cap in years past, hasn't asked Congress to raise the planned new limit, said Harris Miller, the trade group's president.

Miller added that he suspects Congress won't want to take up the issue until employment rates in the U.S. improve.

The strategy of proponents for a higher cap may be to wait until the 65,000 limit is reached, sometime in 2004, before seeking any further increase, said Miller.

Roughly 79,000 H-1B visas were issued in the government's last fiscal year, well short of the 195,000 cap. ▀

VISA CONTROVERSY

For more on this issue, visit our Web site's Focus on H-1B Visas page:

QuickLink s1400
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FRANK HAYES ■ FRANKLY SPEAKING

SCO's Stock Plot

SO WHAT DO YOU DO if you're the CEO of a \$65 million software company that's losing money, losing market share and — worst of all — has a stock that's lost 99% of its value in the space of two years? If you're Darl McBride of The SCO Group, you file a billion-dollar lawsuit against IBM. Then drop the product you've staked your future on. Then send threatening letters to about 1,500 of your biggest potential customers. Then announce a deal with Microsoft.

Result: SCO's stock is up 500% since January. Sort of takes the mystery out of why SCO is taking wild swings at the Linux it championed just months ago, doesn't it?

We know SCO was losing money and market share and stock value, because that's all in the company's filings with the U.S. Securities and Exchange Commission. So is the statement about SCO depending on Linux to rescue the company from its declining Unix sales.

And the connection between SCO's stock price and the lawsuit, the threatening letters and the Microsoft deal? SCO's stock price jumped the day the IBM lawsuit was announced. It jumped again when SCO announced its letter-writing campaign. And again last Monday when *The Wall Street Journal* reported the Microsoft deal.

And every time it jumped, SCO started rattling its saber louder. If you're Darl McBride, you don't second-guess the strategy of trashing Linux to boost your stock price.

There are still a few opportunities for McBride to do that. On June 13, he'll probably announce that because IBM has breached its Unix license, SCO is canceling that license, so IBM can no longer legally sell AIX, IBM's version of Unix. That should make some headlines, and maybe add a dollar or two to the stock price.

And there will surely be plenty of publicity when SCO finally unveils to a few carefully chosen experts some carefully chosen examples of how Linux source code is riddled with copyrighted Unix code. They may not get much chance to determine exactly where any similarities in the code came from, or what they mean. But that's missing the point — or rather, the points the event will add to the price of SCO shares.

Of course, eventually SCO will

have to try to convince a judge and jury that its claims about IBM and Linux are true. But with any luck, McBride will have cashed out by then, either by selling the company or handing the mess off to some new CEO.

Does that sound cynical? Then you haven't been paying attention to SCO. When McBride was hired as SCO's new honcho a year ago, the stock was at about a dollar. McBride slashed costs, including R&D. He cut deals, mostly with other companies that, like SCO, are funded by Ray Noorda's Canopy Group. He changed the company's name to The SCO Group from Caldera. In short, he acted very much like a CEO who's sprucing his company up to be sold.

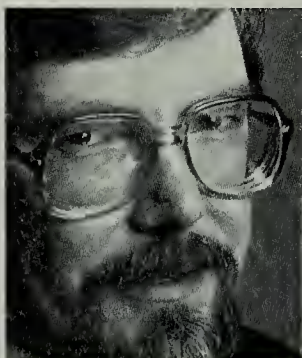
But nothing seemed to budge the stock price until SCO sued IBM in March. Success at last!

Since then, McBride has looked even more like a CEO who's gutting his company to sell it. He killed SCO's Linux — his company's future, remember? He antagonized potential customers in mid-May by sending threatening letters to 1,500 commercial Linux users.

Today SCO may not have R&D or a future-facing product or a growing customer base. But, hey, how about that stock price!

All of which isn't good news for SCO customers. But it should be a relief to everyone else. After all, suing the people who buy software is never going to push SCO's stock price up. And as long as there's one more way to goose that stock price, Darl McBride won't be worrying about us.

Because if you're the CEO of SCO, the last thing you pay attention to is customers. ▶



FRANK HAYES, *Computerworld's* senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Unclear on the Concept

"Everything on my laptop is turning blue," user complains. Support pilot fish hustles to the scene and finds user has attached the laptop to a video projector. The wall you're using as a projection screen is painted light blue, fish patiently points out. "I know that!" user snaps. "I'm not stupid. Just fix the @#\$%! thing so it projects white!"

New Math
IT pilot fish sends this report to several accountants every

SHARK TANK

users that only one computer can connect at a time. That satisfies every-

month in two parts — he has to break it up because it's bigger than the 1,500KB size limit on attachments. But one user says that's unnecessary. "Quit sending me kilobyte files," she says. "Send megabytes. The file will only be 1.5MB, much smaller than the 1,500 system limit."

Stealth Mail

Help desk pilot fish can't get a response from other support techs or the user who complained about this problem. So to make sure there's a paper trail as he abandons the trouble ticket, he sends out his last e-mail request to support and the user — with a blind carbon copy to his manager. Later that day, the manager takes fish aside. "Don't include anyone on the bcc: line," he tells fish. "It looks like you're trying to hide something."

No Problem, Then

This remote site's frame-relay connection goes down, so IT pilot fish sets up an emergency dial-up connection. And since there's only one regular phone line in the office, he explains to

one except an outside salesman. When fish explains there's a connection for only one computer, he says, "Oh, this one isn't a computer. It's a laptop."

Incomplete Waste

Two copies of this huge mainframe report get run every day, even though only 20 or 30 lines ever change. IT pilot fish suggests printing only the changes, but user won't have that. Fish tries again: Do you really need the second copy? "Oh, we've never actually used it," user says. "It just sits on the corner of George's desk, and every day the new copy replaces it. We do recycle it, though, so it's not a complete waste."

Priorities

Manager of this remote site complains she can't connect to the central server. IT pilot fish has her check the router; she confirms it has no power. "Follow the power cord and make sure it's plugged in," fish says. She does; it isn't. "Plug it back in," he says. She objects: "I'd have to unplug my charger for my cell phone."

FEED THE SHARK! Send your true tale of IT life to sharky@computerworld.com. You snag a snazzy Shark shirt if we use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.

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**Thursday, June 5, 2003, 8:00am to Noon
Marriott Marquis, O'Neill Room**

8:00am to 8:45am

Registration and Networking Breakfast

8:45am to 9:15am

**Welcome and Opening Keynote
Outsourcing Watch 2003:
The Best of Both Shores**

Maryfran Johnson, Editor in Chief,
Computerworld

9:15am to 9:45am

**Industry Update
Evaluating Your IT Sourcing Options**

Bart Perkins, Managing Partner,
Leverage Partners (an IT consultancy)

9:45am to 10:15am

Business Case Study

Helen Cousins, CIO and SVP,
Cendant Corporation

10:15am to 10:30am

Refreshment Break

10:30am to 11:30am

**Outsourcing Strategies
Leadership Strategies in Offshore
Outsourcing**

Moderator: Maryfran Johnson,
Editor in Chief, Computerworld

Panelists:

- Helen Cousins, CIO and SVP, Cendant
- Robert Reeg, SVP, Systems Development, MasterCard International
- Kim Ross, CIO, Nielsen Media Research
- Greg Schueman, Vice President and CTO, Mercury Insurance Group
- Gregory Tranter, CIO, Allmerica

11:30am to Noon

Open Forum



Maryfran Johnson



Bart Perkins



Helen Cousins



Robert Reeg



Kim Ross

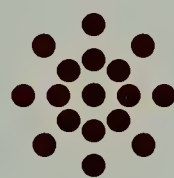


Greg Schueman



Gregory Tranter

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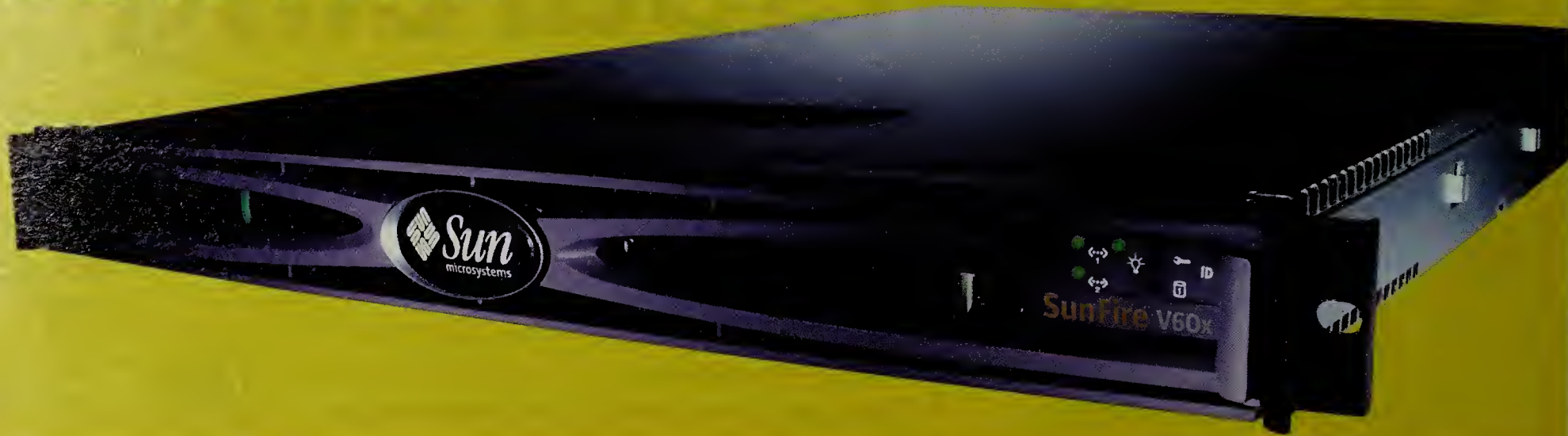
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